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ECONOMIC AFFAIRS

EKO: ECONOMICS AND ORGANIZATION

OF INDUSTRIAL PRODUCTION

No 3, MARCH 1986

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No 3, March 1986

Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA published in Novosibirsk.

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THE CREATIVE ACTIVENESS OF THE MASSES: SOCIAL RESERVES OF GROWTH

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 3-25

[Article by Academician T. I. Zaslavskaya, of the Novosibirsk Institute for the Economics and Organization of Industrial Production of the USSR Academy of Sciences Siberian Branch]

[Text] Decisive Condition for the Acceleration of Socioeconomic Development

The party's strategic course of accelerating the country's socioeconomic development is aimed at the qualitative transformation of all aspects of Soviet society and its transition to a higher qualitative stage of development. We are talking about a fundamental renewal of the material and technical base of social production, substantial improvement in the system of social relations, a progressive transformation of conditions and our way of life, and a galvanization of the entire sociopolitical life. The party links the solution of these tasks directly to the enhancement of man's creative activeness. Socialist society, the CPSU Program says, cannot function efficiently without discovering new ways to develop the creative activity of the masses in all spheres of social life. The larger the historical objectives that are set, the more important the economically motivated, responsible, conscientious, and active participation by the millions becomes to attain the objectives.

This interest in the human factor of social development, which has become significantly greater in the last few years, is far from accidental. It reflects an objective trend toward a sharp intensification of the influence exerted by human activity, not only on the living conditions of people themselves, but also on the condition of major ecosystems all over the globe. After all, in terms of its economic, social, and ecological effects, the average hour of modern man's labor is, to all appearances, equivalent to days, if not weeks, of the labor of his parents and grandparents.

This is mainly due to the rapid growth of the machine-to-worker ratio. As recently as the 1930s, wheat was being harvested by sickle or horse-drawn mowing machine. Foundation trenches were being dug by shovels, soil was being carted away in wheelbarrows, and gold was being panned by hand. The low productivity of manual labor corresponded to the relatively small damage

caused by an individual worker's negligence. The picture today is completely different: Grain is harvested by self-propelled combine harvesters, powerful excavators and bulldozers have replaced the labor of hundreds of workers, and a five-man team mines with a dredge worth several million rubles. Under these conditions, a sober, skilled, and reliable worker produces tens or even hundreds of times more output. A result of this, however, is that a single irresponsible or intoxicated worker can produce massive quantities of rejects, cripple valuable equipment, put an industrial stock-raising complex out of action, or cause a train crash. The havoc created is tens or hundreds of times worse than that produced by the Luddites of old times.

The machine-to-worker ratio will rise even faster in the future. The party considers the main task of the 12th Five-Year Plan to be the boosting of efficient economic development. This is to be accomplished by accelerating scientific and technical progress, retooling and remodeling production, and by intensively utilizing existing production potential. Greater demands will be made not only of workers' skills but also of their reliability, responsibility for assigned work, ability to make independent decisions, initiative, probity, honesty, identification with the collective's interests, and readiness to perform their public duty.

Another reason for the greater attention paid now to the human factor of production stems from the fact that, in the past few years, more often than before, man's labor has been the weak link in the operation of complex technological systems. It seems that man is unable to climb up onto the "pedestal" on which scientific and technical progress tries to place him. He is unable or unwilling to satisfy the growing demands made of him by automated production methods. Many examples already illustrate this, and the periodical press provides new ones. Take the collision between a passenger train and a goods train on the tracks at Barabinsk Station in October 1984. It occurred because four skilled and experienced railwaymen almost simultaneously committed eight different deviations from instructions. Each of these deviations seemed insignificant, but taken together they resulted in disaster.¹ Of course, such incidents are rare, but we still produce combine harvesters incapable of harvesting grain, and footwear is sent almost straight from the production line to the discount stores. This brings to mind the long years of struggle waged by a departmental design bureau against a promising innovation conceived beyond its walls that threatened to break its monopoly.... It seems that if a person finds himself outside the scope of public monitoring and is left to his own devices, he does not always live up to the demands made by contemporary productive forces. This makes particularly relevant the party's program directive about boosting the social prestige of conscientious high-quality labor and vocational skills, and actively nurturing in every person a feeling of personal responsibility to society for the results of his labor.

There is, indeed, a great need for this. But what is to be done now, since the education of the more perfect man has still not yielded the necessary results?

One way to solve this problem is via the comprehensive strengthening of discipline—labor, technological, planning, and financial—which presupposes a

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considerably stricter accountability and monitoring of all types of economic activity. But scientific and technical progress, while expanding the scale of the equipment used, separates people and individualizes their work places. Today's tractor driver cultivates a vast field virtually by himself. A weaver or spinner attends to dozens of looms, making it impossible to monitor the quality of her work from the sidelines. Moreover, labor is increasingly divided and specialized, and those performing the most responsible work are frequently the best if not the only specialists in their field. Who is skilled enough to supervise their work? Another question of considerable importance concerns the subordination of supervisors and the fact that they may share common interests with those whom they supervise. Belonging to the same collective, people establish personal contacts, and the objectivity of the supervisor becomes questionable. In order to avoid collusion between supervisors and workers, it is necessary to introduce "second-tier supervisors" above them. This ultimately leads to the emergence of an unwieldy structure of inefficient bureaucratic monitoring, with the number of "freeloaders" increasing severalfold. This means that, under modern conditions, importance is attached not so much to external supervision and the observance of "instructions to the letter," although this is still necessary, but rather importance is attached to conscientious self-monitoring by skilled workers who possess lofty labor virtues and consider poor execution of work to be intolerable. This formulation brings us back to the problem of man's social character.

The country's rapid socioeconomic development in the postwar period led to substantial changes in this character. As levels of compulsory education have risen, each new generation has begun its labor life with a higher initial standard of education. The population's cultural standards have risen noticeably. The development of mass communications, and primarily of television, and the distribution of newspapers and journals have greatly expanded the population's horizons and its knowledge of the processes occurring in the country and abroad.

The orientation of people's values has become more complex, and their personality types more varied. The structure of needs and interests has become more individualized, working people's legal and personal self-awareness has developed, their skill levels have been raised, and labor and intellectual potential has been augmented.

It seems clear enough: The social character of the bulk of those playing a part in the economy has been enhanced. After all, better educated, more cultured, and more skilled workers ought to be more conscientious and more responsible. They ought to perceive more strongly the essence of social interests, and ought to strive to observe them. But life is not straightforward, and the actual effect of people's social development is much more complex. Of course, the conscientiousness of the majority of working people is rising with the corresponding rise of their involvement in social interests. However, this process is not without direction but is rather contradictory. Also, and this is our main point, a highly skilled and socially developed person is a less suitable object for administrative (and even less so for bureaucratic) management. This is one reason why the methods

of management by specific directive in the economy and other spheres of life are becoming less effective.

The decline of economic and legal "levers," which formerly forced people toward standardized behavior regardless of personal aspirations and interests, also operates in the same direction. Recall the first postwar years. The population's average personal incomes were only slightly higher than subsistence wages. The principle "anyone who does not work, does not eat" was applied almost literally, and every adult worked to the full extent of his abilities as a condition for his family's normal existence. Compared with the present, the conditions for changing work places were extremely complex; for example, young people from kolkhozes could go to study at technical colleges or VUZes only if approval by the general meeting of kolkhoz members had been given.

The situation has changed fundamentally since then. The average level of the population's income is substantially in excess of its expenditures on the physiologically necessary costs of existence. State-funded pensions for old age and temporary or permanent disability pensions have been introduced. The availability of job vacancies in most sectors, regions, and cities facilitates the mobility of labor, allows people to spend more time "getting used to" different types of labor or trying out different vocations, and allows them to redistribute their labor efforts between social production, personal plots, and organization of domestic life.

The result is that a considerable proportion of people have the option to choose between two strategies of labor behavior. The first is expressed by the formula "maximum income at the price of maximum labor" and is typical, for example, of workers working on family contracts in agriculture, of initiative teams of seasonal construction workers, of owners of large personal plots who produce marketable goods [krupnoye tovarnoye lichnoye khozyaystvo], teams [artel] of prospectors in the gold extracting industry, and of others. The other strategy is described by the formula "guaranteed income at the price of minimum labor" and is typical of persons with poor health, working pensioners, mothers, young people living with their parents, and so on. The bulk of the population combines both strategies depending on personal preferences and circumstances.

The opportunity to vary the degree of labor participation in production according to external conditions and personal aims offers people greater freedom, makes their lives easier, and therefore must be perceived as one of society's social gains. Nevertheless, it reduces further still the effectiveness of the administrative management of labor. Under present-day conditions, neither the setting up of more and newer specialized departments, the complication of their structure and expansion of their apparatus, nor the snowballing of regulations and instructions serve to enhance the really balanced nature of social development.

On the contrary, they diminish it. This is because the labyrinth of numerous contradictory instructions makes it even easier for an experienced person to find a line of behavior corresponding with his own interests.

It must also be noted that, as a rule, the regulations and instruction typical of the administrative forms of management govern the activity of specific organizations and official or vocational groups. But the growth of the socialization of production leads to the intensive development of intervocational and interorganizational ties whose implementation is the preserve of certain categories of workers. In the process of constant interaction they develop not only work-related but also personal relations. The result is the formation of groups of people working in different organizations and departments, formally independent of one another, but in fact tied by permanent and quite substantial relations. These groups are of an informal nature, their objectives, composition, and behavior are essentially difficult to monitor, and yet their influence on the development of the social economy is extremely great. Press material shows, for example, that the overwhelming majority of major breaches of legality and public morals are committed by precisely such informal groups, which unite workers from different organizations at different levels in the management hierarchy. Administrative methods of management are completely useless regarding the activity of such groups.

The transition to economic methods for the management of the economy was promulgated way back in the mid-1960's, but it was being carried out slowly and inconsistently. The result was that adverse trends and difficulties emerged in the country's development in the 1970's and early 1980's.

One of these trends was the decline of the overall balanced nature and manageability of social development, which took the form of a slackening of plan discipline, difficulties in material and technical supplies, emergence of "shady" economic relations, expansion of certain sources of unearned income, intensification of imbalances in the demographic development of the country's regions and republics, spread of alcoholism and drunkenness, weakening family bonds, and so on. The work done by society to master these processes and bring them within the mainstream of systematic management reflected the task of overcoming the lagging of production relations behind the development of productive forces, which was spoken about at the latest CPSU Central Committee plenums.

We must also add to the adverse trends that manifested themselves in this period the increased proportion of passive workers (basing behavior in social production on the principles of "it is nothing to do with me" and "I can do without this"), the spread of "instrumental" attitudes toward labor as primarily a means to gain necessary benefits, and the switch of some workers' interests from the social to the personal and family spheres, from the creative to the consumption sphere.

The key to overcoming these trends and accelerating socioeconomic development lies in the creative galvanization of man as the subject of economic, political, social, and cultural activity. The awakening of the social energy of the masses and their transformation into real masters of the entire social economy and the main force for the management of society presuppose certain positive changes in public awareness. "The party's entire experience shows: Little can be changed in the economy, management, and education unless a psychological reorientation takes place, unless the willingness and skill to

think and work in the new fashion are developed."² It seems to us that one of the avenues for the necessary reorientation of awareness is to change the impression of man's role in the economy's development, which prevailed in the preceding period.

Labor Resources or Human Factor?

Recent party documents, including the new edition of the CPSU Program, persistently emphasize the idea that the goals set by the party are impossible to achieve without activating the human factor. Nevertheless, the stereotype developed several decades ago and reflecting the previous stage of our society's development, is still prevalent in the public mind. One of the typical features of this stereotype is the perception of people primarily as factors determining the operation and development of production. This view of man's position in the social economy is adequately described by the term "labor resources." It must be noted that this term has played a major positive role in economic science and practice. For several decades it helped the efficient study of the processes of shaping, distributing, redistributing, and utilizing society's work force, and the development and improvement of the methods for the management of these processes. Even now this term can be successfully utilized in carrying out many tasks involving the supply of labor for the national economy. It is, however, becoming clearly inadequate regarding the overall understanding of people's position in production under contemporary circumstances.

Indeed, the perception of people as labor resources somehow implies that they are equated with material and physical factors of production like equipment, raw materials, energy, and so on. Under such an approach people are perceived not as conscientious subjects of labor and economic activity but as objects for management. After all, resources are, by their very nature, passive: They do not set their own goals, they have no personal needs or interests, they do not engage in purposeful behavior. On the contrary, they are "shaped," "distributed," and "utilized" by others on the basis of social interests that are external in relation to the resources.

The approach to man as a specific production resource reflects a certain level of development of public awareness, based on the corresponding level of development of society itself. One of the typical features of this approach is the view that society's basic objective is to build up the economic and production potential (building the material and technical base of communism), while the provision of normal conditions for people's life and labor is a means to attain this goal.

Hence the relatively restricted understanding of the content of social tasks, primarily: providing normal conditions for the reproduction of labor resources, satisfying the people's consumer needs by improving labor remuneration in social production, organizing the supplies of consumer goods, building well-appointed housing and children's preschool institutions, and developing the social and daily life infrastructure. The topicality of these tasks is beyond argument, and their fulfillment is the absolute condition for the creative galvanization of the masses. But the fulfillment of the tasks in question is insufficient to awaken the social energy needed for the real

acceleration of the country's development. In fact, it is impossible not to see that their content is not specific to socialism. Many far-sighted capitalist firms are now showing exceptional "concern" about the conditions of their workers' labor and life and the state of their health and morale, but only because this is economically advantageous.

Socialist society can and must set itself fundamentally new, more complex, and long-term social goals which have not been attained before by anyone else. In order to formulate these goals, it is primarily necessary to take a broader and more modern view of man's position in socialist production. According to this view, people are active subjects of social activity, creators of material and physical conditions for their own life, the driving force of the development of production relations. They deliberately set goals corresponding with their values orientation and needs, and deliberately choose means to attain these goals.

In their activity they take into account the norms and rules of behavior set by the state and society, the extent of their rights and obligations, the leaders' instructions, and also their own personal and collective interests. Basically respecting the management influences of the state and the organizations representing it, they simultaneously engage in independent actions and conduct, which significantly influence the country's socioeconomic development.

The term "labor resources" is inadequate to express this view of man's role. After all, people are not "shaped," they are born, brought up, and trained; they improve their skills, get married, and have children. They are not "distributed" among jobs but deliberately choose their vocation and a place to live and work, they migrate and move from sector to sector and from enterprise to enterprise. Finally, they are not "utilized," but work consciously in the social or private sectors of production with varying degrees of motivation and efficiency, more or less materializing their labor and intellectual potential.

The term "human factor," which is used in the CPSU Program and is new to our science and practice, has become an expression of the modern understanding of man's position in the economy.

Encyclopedic dictionaries define a factor as the cause or driving force of something. Consequently, the term "human factor" focuses attention on man's active and driving role in the economy, which corresponds most closely with the modern stage of development. On the one hand, the term "human factor of production" represents a vast stride forward in comparison with the term "labor resources." On the other hand, it reflects the limited nature of the development stage attained by our society, at which the perfection of man himself has still not become the main task of society, and man is perceived, if not as a resource, still as a factor of some external processes.

What is the human factor, be it of production, of the economy, or of society? From our point of view, it is an aggregate subject of social life with a complex structure. In other words, it is a system of interacting classes, strata, and groups occupying different positions, whose activity and interaction ensure society's progressive development.

From the standpoints of the approach we are developing, social development can no longer be perceived as a means to attain economic goals. On the contrary, the accelerated growth of productive forces emerges here as a condition for the attainment of a qualitatively new level in the development of social relations, and consequently of man himself.

Changes in the traditional views of the correlation of economic and social goals of development also lead to rearrangement of emphasis in the tasks of social policy. While people's needs for the prime necessities of life occupy a leading position within the framework of the former views, the new and broader approach brings to the foreground the need for expanding creative activity, truthful sociopolitical information, political and economic democracy, public respect, interesting contacts, and intensive spiritual life. The tasks concerning the creation of social conditions for the complete revelation of man's abilities and for his creative galvanization as the subject of social life are inherent to socialism and typical of socialism alone. This is why the relative importance of these tasks of social policy will increase as our society matures.

Both tasks are well balanced in the new edition of the CPSU Program. It sets the goal of substantial advancement toward the attainment of "total prosperity and free comprehensive development of all members of society" (Lenin).

The first part of this goal encompasses the entire package of tasks involving the increase of real incomes for all strata of the population, the better satisfaction of demands for a broad range of high-quality goods, the creation of a modern and highly developed services sphere, the further development of housing construction, the improvement of the Soviet people's health, and so on. The second part of the goal takes the specific form of a package of tasks connected with the development of the creative energy and initiative of the masses, the expansion of the people's socialist self-management, the consolidation of the spirit of collectivism and comradely mutual assistance, the development of truly socialist morals, and all aspects of the development of personality. Moreover the solution of the first group of problems, which are more urgent but at the same time easier, is perceived as a means, as a way, as a prerequisite for solving the second group of problems, which are more complex and of a long-term nature.

The task concerning man's social galvanization is important in all stages of socialism. It is, however, particularly topical now because it serves as the key to the intensification of production. After all, the economy's intensive development means nothing else but the production of more and better production with at least the same expenditure of resources. Neither nature nor equipment can, by themselves, be sources of such types of development. Only the human factor can become its source, in other words, people who have fully mobilized their creative energy, initiative, will, and organization. To galvanize people engaged in production and unfetter their energy also means to transfer the economy on to the intensive path of development.

But how are "labor resources" to be transformed into an active and driving force of the economy's development? The best way to achieve this is by

improving social relations. After all, according to K. Marx, human personality is an "imprint" of all the social relations in which it is involved. If the practical experience of a group of people convinces its members that initiative is punished more than it is rewarded, and that the greatest prosperity is gained by workers who are obedient but not creative, it is difficult to expect such a group to be dominated by active workers. If the main bulk of working people are not in fact in charge of the means of production and bear no economic responsibility for the results of labor, they would hardly display a proprietorial attitude toward socialist property. In order for a person to develop the sense of being a proprietor, he must be not only the formal co-proprietor of all social property, but also an actual, even if only partial, proprietor of the small section where he works: He must be given a certain freedom to choose the methods to perform tasks and improve technology, and he must be simultaneously responsible for and interested in the end results of labor. It is no accident that the relations of collective contracts, based on these principles, are on the whole producing promising results.

The CPSU documents clearly define the avenues for restructuring economic management with a view to improving the organization of production and boosting working people's activeness and initiative. Their overall content boils down to gradually squeezing out the administrative methods of management and replacing them with the economic regulation of economic activity by means of a system of plan normatives based on labor collectives' material responsibility and interest. The consistent implementation of the planned measures will indicate a real recognition of socialist labor collectives as independent subjects of labor and economic activity.

It is very important to reorient public awareness more swiftly toward understanding that the acceleration of society's socioeconomic development can be achieved only by the "winning over" of man as a subject, by knowledge of his own goals, motivations, and interests. K. Marx noted that any idea would be invariably debunked as soon as it becomes detached from interest. This is why people's behavior can be effectively regulated only provided their needs and interests are well known.

Unfortunately, the category of interests has been hitherto studied by our science insufficiently in both the theoretical and the practical aspect. Furthermore, the development of specific research into the complex, multifaceted, and contradictory system of socioeconomic interests is to a certain extent fettered by simplistic theoretical views inherited from the recent past. In scientific literature, for example, and particularly in propaganda literature, one still encounters indications of the community of interests of all classes, strata, and groups of Soviet society more often than indications of their contradictory and complex nature. Written works are concerned more frequently with the need to subordinate personal to social interests than with the experience in integrating the interests in question and utilizing personal and collective interests to attain social goals. Regarding specific sociological research into the interests of various social, territorial, departmental, and professional groups, it is still of an isolated nature and does not lend itself to general conclusions.

Under these circumstances, management organizations frequently have to make decisions although they lack sufficient information about the interests and probable behavior of groups affected by these decisions. The result is that the people's reaction to management measures is different from what was expected. The increase of the regional wage differential for Northern Siberia in the late sixties can be cited as an example of such a situation. It was expected that the increased labor turnover, which had caused great damage to production, had resulted from an inadequate level of earnings and that an increase of the wage differential would lead to the stabilization of cadres. In reality, however, labor turnover did not fall after the wage increase but, on the contrary, it increased. The solution to the puzzle was that most of the workers were coming to the North with the intention of accumulating a sum of money, determined in advance, in order to buy a house, a car, or something else, and the new conditions made it possible to reach this goal considerably sooner.

Another example of erroneous action, caused by lack of knowledge of the population's interests and needs, was provided by the attempt to collectively settle the inhabitants of small rural settlements in kolkhoz or sovkhoz centers. The planners imagined that this collective settlement would slow down the migration from the countryside to the cities, but in reality it increased sharply. The planners miscalculated the fact that the inhabitants of small villages, being moved away from their usual locality, started moving not to the centers of their farms, as the management organizations expected, but directly to the cities. These examples graphically show that efficient management of economic and social development demands reliable knowledge of the laws (motivations, interests, conditions) governing the behavior of the groups being managed.

Activeness of the Masses and Social Justice

One of the tasks of social policy specified by the new edition of the CPSU Program is the increasingly full application of the principle of social justice in all fundamental spheres of social relations. It seems that the choice of this goal is extremely timely, insofar as its attainment would give the most powerful boost to the development of working people's initiative. But what is social justice? What is the meaning of this term under modern conditions? Is it possible to measure the level of social justice in society? What are the specific tasks posed in this sphere?

It is first of all necessary to note that the term "social justice" has a historically specific nature. Under the conditions of socialism it means primarily the consistent and steadfast observance of the principle "from each according to his ability, to each according to his labor." It seems to us that the social meaning of this formula is often diminished as a result of the fact that basic emphasis is placed on its second part, while its first part remains in the background.

Even the second part is interpreted in a simplistic way, as a simple indication of an income distribution method. In actual fact, given a sufficiently broad interpretation, the laconic formula of socialist relations acquires an extremely rich, multifaceted, and contemporary meaning, which is

closely linked with the questions concerning social justice. Let us examine the elements of this meaning.

At least three conditions must be satisfied in order to ensure that every member of society works according to his abilities. First, children born in families with different social positions must have, if not equal, then sufficiently similar "starting conditions" for the development of their abilities. This presupposes that the public, regions, cities, and villages are approximately equally supplied with kindergartens and nurseries; similar standards of children's preschool education and their preparation for schooling; comparable standards of tuition in urban and rural and in capital city and provincial schools, and correspondingly similar chances for graduates from all types of schools to continue their study at technical colleges or VUZes in any specialized field, including the most prestigious ones. It is necessary to add to this identical opportunities for all young people with the appropriate ability to obtain sports, artistic, or musical education. The totality of these conditions means that representatives of each generation enjoy an equally guaranteed opportunity to develop their abilities and talents and, before the start of their labor activity, to shape a labor potential corresponding with these abilities and talents.

Very much has been done during the years of Soviet power to create such conditions. It is sufficient to recall the introduction of compulsory universal secondary education, the creation of an extensive network of VUZes, technical colleges, and vocational and technical schools, and the shaping of a millions-strong people's intelligentsia from the children of peasants and workers. But the level attained in society's development is insufficient for the complete implementation of the principle "from each according to his abilities." The opportunities for the prompt discovery and development of the abilities of children and adolescents also depend to a substantial extent on their place of residence (town or countryside, center or province) and on the socioeconomic position of their parents (level of income, position in the management structure, social ties). Moreover, the higher the level of education (kindergarten, school, technical college, VUZ), the more strongly reflected are differences in social groups among those studying at that level. For example, the majority of students in some of the most prestigious VUZes were in the past graduates from a small number of the best schools in capital cities.

The second condition of labor according to abilities is that the chances of obtaining employment as a worker or an official in various economic spheres, sectors, enterprises, and so on, should depend primarily on the worker's personal labor potential. We take personal labor potential to mean the entire totality of qualities determining the worker's ability to perform specific types of labor: state of health, physical strength, education, skills, level of mental development, practical vocational experience, and--last but by no means least--talent for the work in question. The demand that jobs be distributed according to workers' personal labor potential must be applied not only as regards young specialists but also to the entire process of the promotion of workers up their career ladder.

In general terms, our social practice is built according to this condition, but it is too early to speak of its consistent application. It would be sufficient to point out the fact that qualitative structure of jobs in social production varies substantially between economic regions, cities, and rural areas. For example, the majority of girls graduating from rural schools and wishing to remain in the countryside are today forced to become milkmaids because there are no other jobs for them. Meanwhile, their urban contemporaries enjoy a wide choice of vocations. The overwhelming proportion of men living in the settlements of the mining industry are employed in pits and mines, and women there find it altogether difficult to find work.

The need to overcome social and territorial differences, which at present are increasing, has been repeatedly emphasized in party and government documents. But the solution of this task will undoubtedly demand considerable time. It will be even more difficult to overcome the influence of other factors obstructing the consistent distribution of jobs according to workers' labor potential.

The third condition for the implementation of the principle "from each according to his abilities" is to offer all workers a real opportunity to work with utmost dedication to the full extent of their energy. We are talking about organizing matters so that the end results of labor would depend primarily on the workers themselves, on their knowledge, abilities, volitional qualities, and so on. Workers systematically standing idle due to the lack of raw materials, energy, or spare parts; teachers lacking the opportunity to teach in the way they consider necessary and correct; scientists having their research canceled just before it is completed; artists waiting for years for a part corresponding with their gifts; enterprising economic managers whose hands and feet are fettered by instructions prohibiting businesslike activeness are all working below their capacities. Their labor and creative activeness are being underutilized by society, and they themselves feel no satisfaction from their labor.

The creation of material, economic, and social conditions for the fuller self-realization of members of society in labor activity is a task not only of exceptional importance but also of unusual complexity. It can be resolved only gradually, within the overall process of the improvement of socialism. The real opportunities for creative labor, for display of economic initiative, and for the active quest for new technological, organizational, and socioeconomic solutions will be, over a sufficiently prolonged period, in one way or another "distributed" among groups of workers. And in order to ensure that this "distribution" is fairer, it must be based on objective criteria, conducted under conditions of publicity, and be the subject of broad open discussion.

This is the specific social meaning of the principle "from each according to his abilities." The consistent implementation of the principle "to each according to his labor" is also subject to several conditions.

The first and most obvious condition is that the distribution of incomes (and primarily of wages) should correspond as accurately as possible with the quantity and quality of labor expended by workers. When setting normative

levels for the remuneration of various types of labor, the state (personified by its organs) takes into account arduousness of labor, physical and nervous stress, complexity, responsibility, danger, and harmfulness to health. The national economic importance of the sector (in practical terms the "weight" and influence of the department), the extent of the territory's development and isolation, the acuteness of cadres shortage, and several other factors are added to the aforementioned qualities. It is, of course, difficult to quantify all these aspects of labor with any accuracy, and it is even more complex to compare them correctly and produce a general correlation of the remuneration of types of labor differing in many aspects. This is one of the reasons behind the frequently encountered failure of wages to match the quantity and quality of labor expended by different categories of workers.

But the principle "to each according to his labor" implies not only wages, and not even monetary incomes, but the totality of all material and social benefits that are to be distributed within society. In the first place, the principle that incomes should correspond with the expended labor must be observed not only in the social but also in the personal sector of production; in other words, it must extend to individual labor activity (running personal subsidiary farms, supplying personal services to the population, individual housing and economic building, crafts workshops, and so on).

But the actual earning power of these occupations is determined not by any wages policy but by conditions in the consumer market and the relationship between demand and supply with regard to the commodities or services in question. The result is that some groups of the population receive unearned incomes. For example, the owners of subsidiary plots in southern regions enjoying particular climatic conditions appropriate the bulk of differential rent in addition to labor income.

Some groups of workers exploit for selfish purposes the right to dispose of public property, vested in them by virtue of their official position, and this is another source of unearned incomes. We have in mind the negotiation of "shady" commercial deals, the speculations in scarce commodities, the provision of official "services" to subordinate or related organizations for the corresponding payment, and so on. Such phenomena are in principle hostile not only to the idea of social justice but also to the idea of socialism in general, and therefore deserve to be the objects of a merciless and truly nationwide struggle. The CPSU Program says that the party will take all the necessary measures to defend socialist property, to cut short any attempts to use it for selfish purposes, and to extirpate any forms of appropriation of benefits that are alien to socialism. For the time being, however, it has to be admitted that the principle "to each according to his labor" is being applied incompletely and inconsistently.

The second condition for the implementation of this principle is adequate social security provided from social consumption funds for those members of the population who are unable to work. After all, society is eager to maintain the normal numerical and age structure of the population and ensure the necessary birth rate. In view of this, the costs of children's upbringing should be divided in a set proportion between the parents and the state. Pension security for persons beyond working age does not in any way contradict

the principle of distribution according to labor. First, these persons have expended their labor potential in the country's social production and have helped the development of its economy, and are now entitled to receive income with due consideration for their former labor services. Second, fair pension security for the aged provides fairer conditions for young families, both with and without elderly parents. It is no accident that an increase in payments to those groups of pensioners who receive the lowest income are planned in the 12th Five-Year Plan period.

The third condition for distribution according to labor, taken in the broad sense, involves the conversion of the population's money incomes into specific material and social benefits, in other words the supply of goods and services. In a socialist society, where the income of the overwhelming majority of the population is earned, opportunities to convert money into material and social benefits must, in principle, be equal for all. This applies not only to the trade in foodstuffs, fashionable clothing, and consumer durables, but also to the acquisition of cooperative housing, the building of personal garages, and the distribution of tourism and sanatorium travel vouchers. The implementation of the aforementioned condition presupposes both a similar level of commodity supplies for all population centers and the open trade in all types of consumer goods.

At present, the implementation of these conditions is prevented by two main circumstances. First, the imbalance between supply of consumer goods and the population's effective demand, and the shortage of many commodities. The free and nonregulated sale of commodities in greater demand would place trade workers and the least employed part of the population, being in a position to call at the stores more often, in an advantageous position. In contrast, the regulated distribution of such commodities is organized so as to give advantage to those working harder.

The second circumstance preventing free trade in all types of consumer goods, including housing, travel vouchers, and so on, is the continued existence of groups living off unearned incomes in our society.

The CPSU sets it as its task to consistently aim at ensuring that the distribution machinery is a reliable barrier against unearned income, against wage-leveling, against everything that runs contrary to the norms and principles of socialist society. For as long as these phenomena exist, the regulated distribution of benefits in short supply will serve as one of the means to neutralize their effect. In its own turn, however, this regulated distribution generates a certain unfairness, and must therefore be considered only a temporary measure.

Having described the specific meaning of the main principle of socialism, we also attempted at the same time to discover the main avenues for increasing fairness in social relations. When examining these avenues, it must be born in mind that the idea of social justice has both an "objective" and a "subjective" aspect. The first reflects the extent to which the system of social relations prevailing at a specific stage of development really corresponds with the theoretical model of socialism, while the second is a subjective evaluation of the fairness of social relations between different

groups and strata. While coinciding along basic lines, these evaluations may differ substantially in individual instances.

One of the causes of this involves the fact that, even under the broadest interpretation, the meaning of the principle "from each according to his ability, to each according to his labor" does not cover the entire sphere of social relations. But people are involved in the entire system of these relations and may come across manifestations of injustice in spheres which are not directly subject to the socialist formula. For example, these phenomena include bureaucratic attitudes in dealing with working people's applications and requests; the routing of complaints for examination by persons who are the subjects of such complaints; incorrect and knowingly prejudiced legal proceedings; artificial inclusion of high-ranking senior officials in labor collectives in receipt of state prizes; and so on. People coming across such phenomena perceive them as a grave social injustice, and this has a direct effect on their behavior.

The second source of divergence between "objective" and "subjective" evaluations of social justice lies in the specific features of the position and interests of the social groups in question. Insofar as people's consciousness is determined by everyday life, the views held by different groups on justice are not impartial: They are, as a rule, "colored" by certain interests. This is why one and the same phenomenon (wages correlation between different groups of workers, distribution methods used for goods in short supply, or various management decisions) is often perceived as a correct by some groups and as unfair by others. Differences in people's personal views, education, experience in life, and values orientation also have an effect on evaluations of social justice.

Group behavior is regulated directly not by the subjective standard of social justice but by the objective reflection of this standard in the awareness of the masses. Confidence in their social system's progressive nature and fairness is a most important source of creative energy, labor enthusiasm, and economic initiative by the masses. In contrast, frequent clashes with injustice, the divergence between words and deeds, the helplessness of good, and the impunity of evil generate disappointment in social values, indifference, and promotion of personal interests by people. This results at best in social passiveness and at worst in cynicism and antisocial behavior.

The aforementioned testifies to the importance of specific sociological studies of people's impressions of social justice. The conduct of such research will make it possible to bring to light the "sore spots" of different groups and strata in this sphere and to elaborate effective measures to improve social relations.

Let us note in conclusion that the incomplete fairness of relations in our society is conditioned by both economic and social reasons.

The former reflect the inadequate level of development of productive forces which restricts the opportunity for a more balanced distribution of many benefits, while the latter reflect the unwillingness of social groups to

voluntarily renounce unjustified privileges which they enjoy as a result of certain causes.

The consolidation of social justice is a complex social process which is being implemented through the struggle between interests of different social groups and strata. Under these circumstances it is particularly important to expand the opportunities available to labor collectives and to professional and territorial groups openly to express, discuss, and uphold their interests at different levels of management, and to obtain accurate replies to their requests and needs. The expansion of these opportunities is directly linked with the consolidation of socialist democracy and the expansion of working people's participation in management. Combined with the increasingly consistent implementation of the principle of social justice, this is the most correct means for accelerating socioeconomic progress.

FOOTNOTES

1. LITERATURNAYA GAZETA, 31 October 1985.

2. M. S. Gorbachev, "Fundamental Question of the Party's Economic Policy," Moscow, Political Literature Publishing House, 1985, p 29.

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COMMENTS MADE ON ECONOMIC RESTRUCTURING

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 26-43

[Discussion led by Academician A. G. Aganbegyan, editor in chief of EKO, and Candidate of Technical Sciences Yu. G. Shelyukhin; material prepared by L. A. Shcherbakova; "The Restructuring Continues"]

[Text] It says in the materials of the 27th Congress of the Communist Party of the Soviet Union that the major tasks of the 12th Five-Year Plan consist in increasing the rates and effectiveness of the development of the economy on the basis of acceleration of scientific and technical progress, technical reequipment and reconstruction of production, intensive utilization of the production potential that has been created, improvement of the system of management and the economic mechanism, and, on the basis of this, further improvement of the well-being of the Soviet people.

To do this it is necessary not only to work out an effective strategy for economic development but also, having examined the situation intensively, to make correct tactical decisions. The study of the real state of affairs and the adoption of prompt measures for eliminating negative phenomena and tendencies in the national economy comprise one of the most important tasks of the day. This was discussed in the EKO Director's Club in Novosibirsk. The discussion was led by the editor in chief of EKO, Academician A. G. Aganbegyan and Candidate of Technical Sciences Yu. G. Shelyukhin. We are publishing an abridged transcription of some of the statements.

Scientific and Technical Progress and the Effectiveness of Production

The Price of the Price

Yu. G. Shelyukhin, candidate of technical sciences:

Among the immediate issues which must be resolved on a statewide scale a special position is occupied by price setting. Today it is incapable of providing for the required increase in effectiveness. I shall explain this using the example of many associations--the basic form of industrial production.

As the most progressive form of modern progression the association is called upon not only to produce items, but also to develop new, technically better items. A considerable part of the collective of an association is usually engaged in the creation of new items. In addition to this, they solve no less important and no less complicated problems associated to the development of production technology, the stabilization of technological processes, increased reproduction, and so forth. Solving problems concerning technology opens up the possibility of creating new and more complicated products and provide for an increase in the output of items in production and the reduction of their production costs. The better the association works on the creation of new technologies, the higher the rates at which production costs decrease and the more rapidly the products are updated. But this work is not coordinated with the policy for establishing prices for new items or the indicators that characterize the work of the association and influence the formation of the economic incentive fund. How is this expressed? The price is determined by the amount of the production cost in the third year of series production plus the normative percentage of profitability. And so it turns out that the better the engineer's work at solving problems of technical progress the lower the price of the new, more complicated items, the higher the rates of updating, and the more difficult it is for production to provide for the technical and economic educators.

When an association or enterprise begins to produce a new item the price is set for it according to existing conditions. During the production process the production cost of the item decreases. The price continues to decrease, but the volume indicators in the plans remain at the previous level. By that time it is possible to create a new item which is more effective and, taking into account preceding experience, a lower price is immediately set for it. Thus, it has turned out that the less progressive items have become considerably more expensive and more advantageous for the collective. And this goes on. The next item from this series costs even less.

It frequently happens that the assignment for the five-year plan for the production volume is fulfilled only as a result of the fact that at the beginning of the five-year plan for a long time they produce less effective but more expensive items. Of course production does not stand still and as new products are developed measures are taken to expand the output. But the entire volume of gross output is determined taking into account the initial high price! In order today to have an increase in production volumes at last year's level it is necessary to manufacture several new items to replace the

one old one. Their output increases rapidly in physical units, but in monetary terms it declines. This tendency will continue to exist. We have not yet managed to overcome this evaluation of industrial work in terms of gross indicators.

I think that it is necessary to envision a situation in which new products become simpler, less expensive and at the same time capable of performing a considerably larger number of functions and producing a significant economic effect in the national economy. This effect should be taken into account first and foremost when setting prices for this item. Having increased production in units and having provided for significant growth rates for product sales as compared to the preceding year for commodity output in existing prices, the manufacturers are not able to participate in the competition with related enterprises because of the lack of growth rates with respect to the first indicator.

We have given only one example, but what will happen under the next five-year plan when the rate of renewal of equipment is to be higher? If the approached prices is left unchanged, the associations and enterprises that are doing active work for long-term improvement of their products will be operating more and more poorly according to formal indicators. Such a situation must be eliminated.

Orders and Demands

V. A. Moiseyev, director of the Siblitmash Plant:

Our plan produces automatic complexes and mechanized and automated lines costing from 1 to 5 million rubles. A question was raised here concerning the quality of planning. A good deal has been said about this, but it is necessary to speak of it again and again. We produce up to 85 percent of our large machines on assignment from the USSR Gosplan and the USSR Council of Ministers. We design them individually for each client. The design and manufacture take from 3 to 5 years. But it frequently happens that after we have completed our work, the client is still only designing the shop where this line is supposed to be located. Could this really be considered efficient? And the approach is the same regardless of where we turn: it is written in the plan—do it! The lines lie idle for a year, 2 or even up to 12 years! They begin to deteriorate physically and become obsolete. But how can one write them off at this price? Who would raise their hand in favor of this?! Therefore we have to go and put them in operation. We send a brigade of designers, look things over, and make up to 80 percent new components and parts, modernizing outdated equipment. Up to this point, for example, two lines have been lying idle at the Abakan Plant which were manufactured using imported batching items costing about 7 million rubles: they lie around for 12 years! In 1985 we sent our brigades to the Kishinev Prodmash and the Bezhitskiy Steel-Smelting Plant (Bryansk).

These are our suggestions: before planning the production of large-scale equipment it is necessary to design the plant which will accommodate it and then, some time later, order the equipment.

Peculiarities of Experimental Production

Yu. M. Kiselev, director of the Experimental Plant of the Siberian Branch of the USSR Academy of Sciences:

Everyone knows that experimental production has specific peculiarities. Unfortunately, these peculiarities are in no way reflected in normative documents. We know that the USSR State Committee for Science and Technology is developing provisions concerning experimental productions, but we would like for this work to proceed more rapidly. We recall that in the Institute of Economics of the USSR Academy of Sciences there was a small center that studied experimental production. Now we no longer know the reasons why it disappeared. But since the significance of experimental production is constantly increasing, apparently, it is necessary to study and systematize everything that is being done in it.

It seems to us that it is wrong to judge only from the quantitative indicators of the effectiveness of the operation of experimental production. We are placed in the same category as enterprises with series and small-series production. But there exists such a thing as the time factor. It is very important in our activity. Experimental production should react to all the needs of science or other branches of the national economy. Therefore we must have an optimal reserve of capacities.

The time factor must also be taken into account in planning. So far many experimental plants are engaged in minor projects. We make almost everything—cupboards, braided cables...a fairly large number of workers and engineering and technical personnel are taken away for this kind of work. And those items which actually play a decisive role in scientific and technical progress are waiting their turn.

Technical Reequipment and the Capabilities of the Builders

I. M. Selivanov, director of Olovo Kombinat:

Enterprises of the Ministry of Ferrous Metallurgy changed over to the new system of management in 1986. We placed our greatest hopes in increasing the effectiveness of production, which was based on more complete extraction of components from the ore and comprehensive utilization of raw material. But then it was necessary to take the path of technical reequipment and construction of the enterprises. We have the funds for this but the builders of the Western Siberian region are not assimilating them. The economic effect from new technology is 6-7 million rubles a year. But it is not being introduced because of the fact that the builders cannot assimilate 5 million rubles. This problem has been brought up at the highest levels and considered by the board of the USSR Gosplan. But so far there have been no positive changes.

Unworkable Plans

I. S. Anichkin, director of the Radio Parts Plant:

In order to increase the effectiveness of production, each year plans for technical reequipment are drawn up. But they do not exert a sufficient influence on the effectiveness of production. The fact is that the plans are drawn up, as a rule, in July-August for the next year, after the campaign for ordering materials and equipment has already been completed (it takes place in February). It would be necessary to coordinate the orders for materials and equipment with the plan for technical reequipment.

The next issue is the withdrawal of outdated items. These exist at every enterprise and therefore many people know how difficult it is to be rid of them. We, for example, can find no way of doing this. Before removing them we must coordinate this with a dozen fund holders and they must make contact with every consumer enterprise. If even one of them rejects the idea, there is nothing we can do. Here it is necessary to take a stricter approach and figure out why not everyone wishes to be rid of obsolete batching items.

Assistance and Responsibility

S. N. Sokolov, director of the Instrument Plant:

I have just one remark. It pertains to sending workers from industrial enterprises to assist in agriculture, construction and municipal services. We understand that today they cannot get along without this assistance. But since this will also go on in the future, we should like to have mutual responsibility: Ours—for assigning people, and theirs—for giving them work. Otherwise, why not simply ask for as many "unpaid" workers as you want? There must be personal responsibility on the part of those who ask for these people, for otherwise more and more people will be enlisted from the outside and the state will sustain large losses.

From the Economic Experiment—To Integrated Management Systems

Is There Impetus for Development?

Zh. F. Kryuchkov, director of the Precision Machine-Building Plant:

A new five-year plan is beginning and the party and government have adopted a number of very significant decrees. But is the enterprise interested in developing at rapid rates? In adopting a more difficult plan? So far, in my opinion, they are not. The previous situation remains: it is better to adopt an easier plan and overfulfill by 1 percent than to underfulfill a difficult one by this same 1 percent. We need economic incentives which force the enterprise to operate at its maximum. Then a difficult plan will not create the possibility of transforming a capable enterprise into one that is not capable of operating.

Proceeding More Boldly Toward Restructuring

V. V. Shalimov, general director of the Sibelektrotiyazhmash Association

First of all I wish to respond to Zh. F. Kryuchkov. Your enterprise is not among those that changed over to the new system of management. Yet the economic experiment has solved this problem. The growth of the wage fund depends on the growth of the production volumes and the difficulty of the plans. We have a good sense of this dependency.

In our dynamic times it is impossible to manage effectively within the old organizational framework. Seven years ago a council of directors of electrical equipment enterprises was created in Novosibirsk. It is under the jurisdiction of seven major or functional administrations of the ministry.

We decided to direct the work of the council toward increasing the economic effectiveness of production. First we had to carry out the specialization of enterprises in such a way as to reduce the list of jobs, items and kinds of production in each plant. Today each of them is capable of existing independently. We decided to specialize one enterprise, for example, in the production of stamps, another—press forms, a third—cutting instruments.... This kind of distribution was carried out for all kinds of services: instrument, nonstandard equipment, repair and energy, the manufacture of spare parts for presses and metal-cutting machine tools. We decided to specialize one plant mainly in welding, another—in mechanical processing of large parts, a third—in fastener and container production, and so forth.

Of course we understood that there are many difficulties here. The main one is that the additional efforts and expenditures must be made today, and the effect will appear tomorrow. These efforts and expenditures are additional and they place an additional burden on the shoulders of our collectives. The second difficulty consisted in our eternal fear: how to work and how to do more than our neighbors. You work and they receive the effect. And, of course, the third difficulty: we sometimes even have orders from a ministry which are not fulfilled, and will we be able to fulfill decisions of the council, which is a consultative agency?

We gathered together and decided that we would overcome these difficulties. We drew up a program of work and in June 1985 we went to see the minister, made our report, obtained approval, and left the ministry with the appropriate papers with the list of issues without whose resolution there would be no point at all in beginning this work.

The work of the Council of Directors would improve significantly if it were permitted to make noncash exchanges of materials, batching items and other supplies which we have. This need has always existed and even EKO has written about it. It still exists now, especially in the production of auxiliary, nonstandard equipment. It sometimes happens that we have available certain batching items—engines, reduction gears, valves, relays, and so forth—but we do not have others. The same thing is true of materials. Today we do not have the right to exchange things without cash unless we have permission from the territorial agencies of the USSR Gosnab and the ministry.

We also raised the issue of having the repair and construction administrations of the branch, which exist in Novosibirsk, specialize in conducting work at our enterprises alone. But in order to do this the administration would have to be allotted funds for construction materials. Today this administration goes to the client, who has the brick and cement, and does the work there. We also suggested specializing the branch institute, which is located in Novosibirsk, in the creation of plans for technical reequipment, which today is our major concern and the development of the enterprises depends on it.

In October 1985 we received a written response which resolved neither one of these issues. What happened? In principle, permission was given, but each specific issue must be again coordinated in the ministry, that is, in our six main administrations it is necessary to come to an agreement, and then they must coordinate the solution among themselves. This is an impossible job for us. And yet the proposed specialization would be a powerful lever for increasing the effectiveness of production.

The past 2 years have been filled with the most important events and decisions have been made which, from my standpoint, reflect our ideas and aspirations. Realizing these, in my opinion, will depend on how clearly they are delegated in the ministry.

After the criticism of the existing VPO's the restructuring of the work of the ministries began. It has not ended even today. VPO's have ceased to exist and main boards will be expanded. Divisions for capital construction, material and technical supply, labor and wages will leave them. These will be common divisions for the entire ministry. But the problem is that the old units have already ceased to operate and the new ones have not started yet. This restructuring must be conducted more rapidly because otherwise it is difficult to work.

Here are a couple of examples. During the course of the economic experiment we rely on construction through technical reequipment. It is said that for this purpose the enterprises will be allotted construction materials and funds for material and technical resources. But none of this has happened. The materials are not being allotted and the question is not even being considered. In housing construction everything was clear up to this point: we received money from the ministry under shared participation in construction through the gorispolkom or rayispolkom. The sums arrived in the amount of 1.2 million rubles, and the contractor was the Glavnovosibirskstroy. Under the new conditions the funds are allotted as follows: 700,000 rubles for shared participation and 400,000 for the housing cooperative. But we were told in the Gorispolkom that there will be no housing cooperatives in Novosibirsk. The money has disappeared and we will receive much less housing.

And so we have problems, and we always will. In order to resolve them more rapidly it is necessary to carry out the restructuring persistently, without deviating from the decisions that have been made.

Taking All the Best

V. G. Zavyalov, general director of the Sibelektrotrem Association:

In the national economy there is now taking place a changeover from economic experiments to a modern integrated system of management. But are certain positive aspects of the experiments being lost here?

When we entered into the large-scale economic experiment its conditions were fairly clear. But now by the fourth quarter of 1985 a certain amount of confusion has arisen. During this time the ministry has never once asked us about the fulfillment of indicators of deliveries according to agreements, production costs or labor productivity. What has unnoticeably risen to the top again are commodities and sales. If you have not fulfilled the plan for commodity output you are given the complete penalty, and 100 percent fulfillment of the plan for deliveries goes unnoticed. The bank does not ask about the fulfillment of the delivery plan either. It monitors the quarterly products list. If it is not fulfilled, regardless of the fulfillment of the plan for deliveries, credit is not granted.

At the end of 1985 one of our clients refused to accept the products he had ordered. We anticipated this and did not make them, but the enterprise suffered for a full year because of the failure to fulfill the plan according to the products list. We coordinate with the client and change the products list. What else is necessary? No, you must coordinate with the higher agencies—with the USSR Gosplan, which is the intermediate unit. We regularly send dozens of people to Moscow in order to carry out this coordination. And, as a rule, we end up with a products list which has not been coordinated with the client and has been arbitrarily introduced into our plan.

In 1981 we produced a steel-smelting vacuum furnace costing 5 million rubles for one of the heavy machine-building plants. It has not been installed to this day. In 1980 Uralmash ordered a machine which has no analogues in the world costing 5.5 million rubles. It was created using equipment from the GDR and the USSR. It has been sitting at our enterprise for 6 years now. We have paid more than 1 million rubles in fines to the bank alone.

Today I wish to recall the words of the chief of the planning and economics division of the ministry, V. Ye. Astafyev: "I do not see on the part of the central agencies (Gosplan, Ministry of Finance, Gosplan) a striving actually to experiment using the experience of our branches or to create an effective economic mechanism."¹ These words were uttered 2 years ago, but the situation is almost the same.

Recently, with complete justification, a good deal has been said and written about the large role of the engineer in production. The Leningrad experiment in improving wages for designers and technologists has been under way for 2 years. It is probably time for everyone to change over to these conditions for work. But in our city this is permitted for some enterprises of our ministry and for others it is not. On what considerations is this based? We do not know. Even though we have a large material incentive fund, I cannot provide proper incentives for 500 designers from the design bureau.

Many instructions which we use as guidelines are outdated! Now is the right time to free us of their yoke and to revise outdated instructions which were created decades ago and are now, in my opinion, the greatest impediment. I think it would be useful to rearrange many obsolete structures as well.

A lead article of EKO (No 11 for 1985) gave a good example from our association. Next door to us construction is being completed on the Institute of Special Problems of Ferrous Metallurgy. It is being constructed with money from the Ministry of Ferrous Metallurgy and is in the system of the Siberian Branch of the USSR Academy of Sciences but it could not exist without Sibelectrotrem: we create new technical equipment for the country's metallurgy --steel-smelting furnaces, lasers, industrial accelerators and so forth. Why not create an interbranch complex which would include this institute? Then many problems of scientific and technical progress would be resolved more rapidly.

Incomes and Expenditures

V. I. Cheplakov, manager of the oblast Gosbank office:

I shall convey a couple of ideas that are gleaned from many years of work in bank agencies. In order for a mass of money to be returned to the channels of monetary circulation and not been retained in a book or a pocket, in order for the economic mechanism to include when "in operation" elements for satisfying the consumer demand, I think that it is necessary to work in several directions. Today the bank is too generous in granting credit and hence the inefficiency in its utilization. Every enterprise wants to fulfill the sales plan. They deliver products that are not always necessary or of good quality. The consumer could reject them, but pressure is put on him: pay because the supplier is not fulfilling the sales plan, help, please. And they pay. In 1979 it was envisioned that the bank would issue payment credit to pay with a preliminary receipt. And this means that it is necessary first and foremost for the actions to be coordinated in the bank. Then this provision was abolished and payment could be made with a receipt issued subsequently. It was in effect for 3 days: if the purchaser did not refuse this meant the payment would be made.

This is how the purchaser tacitly agrees to pay all bills that are submitted. But the purchaser does not pay with his own money, he uses bank money. And it turns out that the bank has purchased a large mass of products which are accumulated in the warehouses. And I would say that the rates of production of unnecessary material values are growing.

Now about consumer goods. Things are even simpler here: if the producer has produced something, even it stays on his shelf, it counts. In retail trade in our oblast we have now accumulated 15-16 million rubles' worth of unmarketable goods, and by the end of the 11th Five-Year Plan there were 5-6 million rubles' worth.

During 9 months of 1985 the underfulfillment of commodity turnover amounted to 112 million rubles. Yet there were 650 million rubles' worth of goods in the

retail trade network. How did such a situation come about? In the first place, we produced the wrong things. But still we produce them and store them. In the second place, we are not able to trade. And apparently we have no intention of rearranging the work of trade, since the system of incentives there operates as follows: the bonuses paid for monthly indicators. They may be fulfilled for a month or two and then in the third month they are not, so that the quarterly plan is not fulfilled because the planning is based on the level that has been achieved. So it is better for trade to obtain the bonus, to turn in a report, and then not to grow at rapid rates. While our wages increase by 2.4 percent per year and the volume of industrial production--by 4 percent, in trade the increase is 1.1 percent. What happens? Wages increase but they are saved up and they are not properly put back into monetary circulation. This means that the individual is not interested in earning more--what can he do with the money? If we were to completely satisfy the demand for consumer goods, the economic mechanism would work much better.

Hopes in the State Agroindustrial Complex

A. S. Stepanov, director of the canned meat combine:

Much is being said about the prestige of occupations and about the fact that it is necessary to increase the prestige of metal processors, foundry workers and so forth. Well, our basic profession can be boldly registered in the "Red Book."

Having worked in the branch for many years, I have noted how it is gradually becoming more "secretive," almost nothing is said about it in the press, although we live and experience great difficulties both with the introduction of the achievements of scientific and technical progress in the branch and on other levels. I shall discuss certain of these.

As a rule, everyone complains about planning from the level that has been achieved. But we would be glad for this. Why? I shall give an example. Under the 11th Five-Year Plan we failed to produce products in a volume for approximately 1 year--about 100 million rubles' worth. But for the 12th Five-Year Plan our plans were set not from the level achieved, but from the previously planned level. Here someone had said that the three-unit system was poor, and we still have a five-unit system. How can one work in this five-unit system?

We are placing great hopes in the organization of the Grosagroprom. Of course there will be a reduction of management personnel. We should like for this reduction in our branch not to reach the level of the enterprises because we have practically no management personnel: we have the director, the head engineer, the head mechanic, and the shop chief. There are no divisions, design bureaus or developed economic service. We had them at one time but through gradual reduction they have been eliminated. We have a head economist who has four people under him. And this is all there is to the economic service. Now, when the economic mechanism is improved, it is exactly the right time to turn attention to the food branches, including the meat branch.

At the Center of Attention—Man

Personnel of the Association

V. A. Aranovskiy, general director of the Tyazhstankogidropress Association:

Since 1985 we have been working according to the new system of management. When we were preparing to change over to it we actually managed to do a great deal. I think that the changeover to the new system of operation did a lot for us. But after we began to work under the new conditions there suddenly appeared many provisions, instructions and guidelines which limit the effect of individual provisions.

Since the basis of any changes, of course, is man, I shall discuss the social issues. We have managed to regularly fulfill the state plan for the past several years. According to the provisions we could have paid bonuses of up to 50 percent, and sometimes up to 75 percent, but the structural subdivisions of the central board and the VPO began to make their own decisions, as a result of which our material incentive fund remained at the previous level.

I wish to emphasize that even if we had thought of something significant, it would obviously be necessary to bring the matter to completion. So far there are still fairly many unsolved problems. Here is one of them. According to the provision of the large-scale experiment, it should be advantageous for the enterprise to adopt a large plan. But this is not always the case. For example, we have had established for us a firm transition coefficient for increasing the normatives of the wage fund--0.3. If the enterprise had a large wage fund and a large average wage, even with the coefficient of 0.3 it would have a greater increase in the wage fund than would an enterprise with a smaller fund, regardless of the results of the work.

The indicators of our work under the 11th Five-Year Plan are as follows: the increase in the output of products--38 percent, the increase in labor productivity--37 percent, and the increase in wages--only 12 percent according to the established normative. About 1,200 of our people work in metallurgy where there are supposed to be advantages and benefits. We do not have these benefits and we can in no way prove to the ministry nor can it prove to the Gosplan that they are necessary.

It is necessary to create good conditions for the workers, to build excellent dispensaries, housing and kindergartens...but in our association, for example, this will not reduce labor turnover. The fact is that the prestige of the occupation of metal processing is declining sharply. In order to stabilize the situation with engineers we have managed to publish a joint order from our ministry and the RSFSR Ministry of Higher and Secondary Specialized Education concerning the creation of a scientific production complex which would include enterprises of the Ministry of the Electrical Equipment Industry and the Novosibirsk Electrical Equipment Institute. A good idea. But when it came to actually carrying it out it turned out that as of now it is still impossible to coordinate the interests of production and VUZ science. The NETI engages in certain problems while we are interested in others that are more concrete and directed toward the interests of production. We are creating a scientific

production complex, investing funds, building training facilities, and supplying them with equipment. In return we expect trained personnel who are oriented toward our production. Beginning with the first course the students should study the specifics of their future jobs, and beginning with the second and third courses they should train on the job in particular design divisions and in production. So far the institute is not doing this. The Gosplan allots us only 5 people a year. Half of them will not go to work in the design bureau or shop. I think that if we were to raise the prestige of this labor we could achieve a great deal.

A Specialist for Light Industry

S. M. Zverev, director of the Novosibirsk Branch of the Moscow Technological Institute of Light Industry:

In order to develop a specialist who is worthy of the age of the scientific and technical revolution it is necessary to create the scientific production collectives which were discussed by V. A. Aranovskiy. We do not have these in light industry. Suffice it to say that at enterprises of Siberia and the Far East 80 percent of the managers--directors and head engineers--do not have a vocational education.

The VUZ must have the capability of maneuvering in arranging the training process. Of course the base disciplines are the same when training engineers. But each branch has its own peculiarities. Probably more attention should be paid to them when drawing up the training programs.

Increasing the Price of Collective Incentives

G. Ye. Kolonda, deputy of the city soviet of people's deputies:

There is no doubt that conditions for accelerating socioeconomic development exist at the enterprises. First and foremost these include the existing labor collective with its great capabilities and traditions, which understands and in all ways supports the party line in the area of the domestic and foreign policy.

Conditions for accelerating development exist, but it is necessary to do a large amount of purposive work. I think that one of the most important conditions is a comprehensive clarification of party policy, political education of the worker and mobilization of the collective for carrying out these important tasks. One is impressed by the large amount of attention that has recently been paid to the social factor in production--the human being. We still have many defects in educating the collective and a large number of absentees and drunks. I wish to discuss only one aspect.

Harsh measures are now being taken to eliminate drunkenness and to strengthen labor discipline as well as law and order. We undoubtedly welcome this and are trying to take full advantage of the rights given to the collectives. And this is producing positive results. But we must admit that the application of administrative punishments and the introduction of a system of fines are the result of omissions in ideological and political-educational work, a

compulsory measure which is dictated by the real situation that exists. Therefore I consider raising the level and increasing the role of ideological and political education work to be an indispensable condition for accelerating the socioeconomic development of any enterprise. It is necessary to arrange things so that the drunkard and the one who avoids work will be rejected everywhere.

It seems to me that in a number of cases we are too taken up with increasing material incentives, sometimes we try to raise enthusiasm through material incentive to the detriment (or instead of) political education work, and we try to use material incentives to compensate for the fact that we have not completed our work in the area of creating working conditions and technical development.

It is necessary to have an efficient combination of individual and collective, material and moral incentives. Greater preference, in my opinion, should be given to collective material incentives. It is precisely through material incentives for the collectives and not individual members of them that we should basically solve problems of improving the well-being of the workers.

Then material incentives will also solve educational problems and problems of consolidating the collective. There arises the question: why is the enterprise's material incentive fund considerably greater--3-4-fold--than the fund for social and cultural measures and housing construction?

It would seem that it would be permissible to use up to 25 percent of the money from the material incentive fund for purposes of social development, but in practice this frequently turns out to be impossible. And yet the material incentive fund is one of the basic sources for individual material incentives, and the fund for social and cultural measures and housing construction is a source of incentives for the entire collective. I think that in order to have an efficient combination of individual and collective material incentives it is necessary to expand the rights of the enterprises to use the material incentive fund for purposes of social development.

Cooperative Efforts

A. I. Kurtsevich, general director of the Sibir Leather Haberdashery Association:

The personnel problem is an important one for light industry. Therefore I should like once again to raise the question of providing the workers of our enterprises with housing. We are allotted much less money for housing than are heavy industry enterprises, and there is a tendency toward reduction. In 1985, for example, we received only 40,000 rubles under shared participation, which provides about 10 apartments a year. This, of course, is insufficient for a collective of 1,500. We must recall once again EKO's suggestions concerning cooperation of efforts of light industry enterprises in the regions for solving their own social problems.²

Discussion of the tasks of industrial enterprises for the 12th Five-Year Plan which was held in the EKO director's club showed that the basic issue that is

bothering its participants is improvement of management and the economic mechanism. Their suggestions were directed toward a profound rearrangement of planning and management of the national economy, the organizational structure and the system of economic levers and stimuli. The ways of realizing these proposals were earmarked by documents of the 27th Party Congress: expansion of the economic independence of associations and enterprises, an increase in their economic responsibility, the insurance of a strict dependency between the funds obtained for the development of production, wages and the solutions to social problems, on the one hand, and the final results of economic activity, on the other.

FOOTNOTES

1. "Rights, Restrictions, Prospects," EKO, No 11, 1985, p 68.
2. See, for example, EKO, No 10, 1985.

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LABOR ORGANIZATION DISCUSSED AT ROUND TABLE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 44-77

[Report on EKO round-table discussion in the USSR Ministry of Construction for Petroleum and Gas Industry Enterprises concerning the first results of the economic experiment in creating comprehensive technological flow lines, prepared for publication by Ye. B. Kibalov and B. P. Kutyrev, candidates of economic sciences, and L. P. Klyuchnikova: "Labor Organization for the Future"]

[Text] The new form of management and organization of production in the USSR Ministry of Construction for Petroleum and Gas Industry Enterprises is called for short KTP, which means "Comprehensive Technological Flowline." They bring about:

efficient work, oriented toward the final result;

deeper specialization of subdivisions; their close cooperation;

the joining of interests of workers, specialists, and managers; more complete utilization of the principle "Each According to His labor."

The KTP makes it possible:

to increase labor productivity;

to reduce production costs;

to have true mutual responsibility of participants in the labor processes;

to develop self-management.

The socioeconomic experiment in the Ministry of Construction for Petroleum and Gas Industry Enterprises undoubtedly deserves a deeper analysis. But the main thing is its extensive dissemination in practical activity.

Participating in the round-table discussions led by A. G. Aganbegyan were:

Alyutov, Viktor Alekseyevich--head engineer of the ministry's Main Technical Administration, Anpilogov, Yuriy Romanovich--chief of the ministry's administration for organization of labor and wages, Bakerin, Valeriy Viktorovich--chief of the TsNOT division, Vaynshteyn, Boris Samoylovich--doctor of economic sciences, Veselyev, Anatoliy Pavlovich--deputy minister, Ivanov, Yuriy Gennadyevich--deputy chief of the ministry's personnel administration, Karpenko, Mikhail Petrovich--doctor of technical sciences, chief of the division of the VNII of Construction of Main Pipelines, Kashin, Vladimir Ruzmich--candidate of psychological sciences, laboratory chief of the NIPIOrgneftegazstroy, Kibalov, Yevgeniy Borisovich--candidate of economic sciences, senior scientific associate of the IEiOPP of the Siberian Branch of the USSR Academy of Sciences, Klyuchnikova, Lidiya Pavlovna--associate of the editorial staff of the magazine STROITELSTVO TRUBOPROVODOV, Kutyrev, Boris Pavlovich--candidate of economic sciences, division chief of the magazine EKO, Mazur, Ivan Ivanovich--chief of Glavtruboprovodstroy, member of the ministry's board, Mikhaylichenko, Aleksey Matveyevich--manager of the Welding and Installation Trust, Myakush, Yaroslav-Stakh Antonovich--Hero of Socialist Labor, leader of the KTP brigade of the Welding and Installation Trust, Satarov, Vyacheslav Ivanovich--winner of the State Prize, leader of the KTP brigade of Mosgazprovodstroy, Semenyuk, Yuriy Semenovich--chief of KTP-1 of Kuybyshevtruboprovodstroy, Serdyukov, Aleksey Alekseyevich--chief of the KTP of Bryansktruboprovodstroy, Filippov, Yuriy Prokofyevich--chief of the Administration for the Organization of Labor and Wages of Glavtruboprovodstroy, Khaytun, Aleksey Davydovich--doctor of economic sciences, laboratory chief of NIPIOrgneftegazstroy, Cheglakov, Boris Ivanovich--deputy chief of the USSR Stroybank administration, Chernyak, Lev Mikhaylovich--candidate of economic sciences, deputy chief of the Main Planning and Economics Administration of the Ministry, Shaykhutdinov, Ilmur, Garafeyevich--Hero of Socialist Labor, chief of the KTP of Tatnefteprovodstroy, Shmal, Ginnadiy, Iosifovich--first deputy minister.

A. G. Aganbegyan: All of us are experiencing a turning point in the country's economic development. It is necessary to radically change the conditions for management. And the main path here is mobilization of the organizational-economic and social factors that are associated with the improvement of the system of management and the entire economic mechanism. Therefore the experience of the Minneftegazstroy [Ministry of Construction for Petroleum and Gas Industry Enterprises] in rearranging the structure of management and creating comprehensive organizations that are directed toward the final result is very valuable. We should like to figure out and understand what parts of this experience can be interesting and useful for everyone.

Sources of Flowlines

G. I. Shmal: In keeping with the assignments of the Energy Program, in the USSR Minneftegazstroy in 1981-1984 the volume of construction and installation work increased significantly as compared to 1980. The amount of the increase significantly exceeds the capital investments of some ministries for the entire five-year plan. With respect to labor productivity the assignment of the 11th Five-Year Plan was filled in the first 3 years. And the work also became more complicated.

In carrying out this work a significant place is occupied by the batch-block method--the main direction in above-ground construction. This method has already been discussed in EKO. We consider the KTP's, comprehensive technological flowlines, to be another one of the basic directions in the ministry's activity. This enables us to begin a radical change toward intensification of production.

A. P. Viselyev: The ministry is doing purposive work for intensification and increased effectiveness of production. We are carrying out technical reequipment, we are searching for new organizational forms, and we are creating a new management structure. All these organizational and technical measures contribute to solving the large problems set for it. The superpowerful gas lines from Urengoy to Center were put into operation ahead of schedule.

EKO: The experiment, naturally, did not originate out of nothing. On what was it based?

G. I. Shmal: Yes, we had experience in high-speed construction of the petroleum pumping stations by the brigades of Buyanov and Kildyushov (from the Sibkomplektomtazh Association). For example, in 1977 these brigades constructed 10 petroleum pumping stations. For comparison: in 1984 all of the ministries put 13 of these stations into operation. Subsequently this good work was somewhat neglected. Further experience was accumulated by the high rate columns which were operating in Glavsibtruboprovodstroy in 1977-1978. Incidentally, the Siberians were the first to begin to create comprehensive pipeline construction trusts. Then the ministry developed a comprehensive target program titled "The Creation and Introduction of Sets of Machines, Technologies and the Organization of High-Speed Flowline Construction of Main Pipelines With a Diameter of 1,420 Millimeters and a Pressure of 7.5-12 Megapascals and Block-Batch Compressor Stations for Transporting Gas From Western Siberia to the European Centers of the Country." The program envisioned a reorganization of the structure of management of pipeline construction.

EKO: What are the peculiarities of this reorganization?

G. I. Shmal: There was a time when earth-moving work on the routes was handled by specialized earth-moving trusts, and the welding was done by specialized trusts of which there were also only a couple for the entire country. These were independent of one another. The branch now has one basic management unit--specialized trusts that are responsible for performing the entire complex of work and releasing production capacities and facilities for operation. With the creation of comprehensive trusts there appeared the possibility of having lower subdivisions specialize in the various stages of the construction of the main pipeline and creating comprehensive technical flowlines.

Toward a New Form of Organization

I. I. Mazur: The first step in creating such a structure was to unite three different masters who had their own material and technical support and various

social and domestic conditions. Each had his own assignment. For example, for the earth movers it was 15 kilometers of trenches a month, and it did not bother them if the welders were stuck in an unprepared trench. And the welders were not interested in the problems of the earth movers or the insulation workers. The labor of everyone employed in laying the pipeline was evaluated according to particular indicators. Now the results of all of their work depend on the number of kilometers of pipeline that have been laid. And there is only one master—the chief of the flowline.

EKO: How many people are there in a KTP?

I. I. Mazur: Previously a comparable volume of work was done by 400-500 people, while today it takes 200-230. And there is a constant desire to reduce the number of people employed in the flowline. The productivity of the flowline varies: for some it is 180 and for others 150 kilometers a year, depending on the conditions of the route. And therefore it is necessary to reveal the optimal productivity. Optimal in the sense that increasing at least to increased expenditures on work and resources to carry it out.

EKO: In modern production organization there is a tendency toward deepening of specialization, which also brings about increased labor productivity. Does not your tendency toward comprehensiveness of work contradict this?

G. I. Shmal: Comprehensiveness under our conditions has led to much greater results than narrow specialization, although in theory despecialization is preferable for increasing labor productivity. In comprehensive trusts internal specialization remains, and this reduces losses of working time and idle time.

I. I. Mazur: Previously specialization was at the level of the trusts, while now it is at the level of the flowlines, and it retains its role in increasing labor productivity.

G. I. Shmal: On the whole the flowlines have not only been able to cope with larger production assignments, but have achieved results which we could not even dream about at first. The ordinary flowlines, those which are not working under a unified contract, in 1981-1982 showed that they can lay 100-150 and some of them 200 kilometers of pipeline a year. On an average for the ministry this indicator amounts to 25-45 kilometers. And the flowlines that are operating under a unified contract which include engineering and technical personnel under the Urengoy-Uzhgorod and Urengoy-Tsentral gas lines produced twice as much as the flowlines that were not working under a single order. Direct expenditures per 1 kilometer of pipeline and the proportion of wages in the volume of construction and installation was also increased.

Yu. S. Semenyuk: Our flowline was organized in June 1982 and it constructed 314 kilometers just of main gas lines with a diameter of 1,420 millimeters, and it constructed a total of 436 kilometers. This is an independent cost-accounting unit which is under the direct jurisdiction of the trust.

The advantages of construction by the flowline method are clear to everyone. As the chief of a flowline it is convenient for me to be in charge of all the

work on the route. The section through Chuvashiya is fairly complex, and we cross 10 rivers and 55 large ravines, 15 highways and two railroads. It is necessary to concentrate a large quantity of technical equipment. If different people were in charge of all of this it would be difficult to perform the entire volume of work in such short periods of time. I can freely dispose of the forces of the earth-moving and welding brigades. Wherever necessary I can also concentrate forces. We do the underground technical work ourselves. For example, today we no longer have to struggle with the interest of the welders in the number of joints as before. For example, in a month they could have welded 40 kilometers of pipe, but our assignment was only for 19 kilometers of pipeline, on which all operations have been carried out and it is prepared for release.

V. I. Satarov: Our flowline was the first to work on the Urengoy-Tsentr-2 route under the new conditions of production organization. Previously the welders usually went several dozens of kilometers ahead, and the insulation workers could not keep up with them. Their wages were also different. Because of the experiment the disparities have been eliminated. The work proceeds under a single contract and is evaluated according to the final result. It is easier to find a common language with the associated workers. It is simpler to eliminate malfunctions of technical equipment, it is simpler to take any machine and put it where it is most needed.

Ya.-S. A. Myakush: I have been working in the flowline since the first days after it was created. We do all of the work along the route, including clearing off the roads, digging the trenches, recultivation and so forth. The work on the Urengoy-Uzhgorod route was completed a half-year ahead of schedule, and the Urengoy-Tsentr was also completed ahead of schedule. The collective works hard. We always render help to those who need it. For example, an earth mover will help a welder will help an earth mover.

I. G. Shaykhutdinov: Our flowline was created on 1 June 1983 on the basis of the line section of which I was in charge. It included 20 welders, six excavator operators and six bulldozer operators. An engineering-technological and row-transport administration were also created. The installation section and the special section for general construction work as well as the station for electrochemical protection were included in the flowline. That is, everything necessary was in the hands of the flowline chief.

What did this produce? Machines and mechanisms are used better. Earth-moving and insulation work is done 24 hours a day. And we do not leave "tracks" behind us because the soil recultivation is done immediately.

M. P. Karpenko: In summing up these statements we can single out three aspects. The first--technical equipment, technology and the organizational-technical structure; the second--the economic mechanism, including the organization and payment for labor; and the third--the support for the work front, in other words, the development of a work schedule for a period sufficiently far into the future. I shall discuss the first. The flow line may be compared with a conveyor in industry. Its distinguishing features are: in spatial terms--direct linearity; and in temporal terms--rhythm. The main advantage is the simplicity of management, which makes it possible to organize

the production process efficiently. Flowlines turn out to be stable and self-manageable systems. Their chiefs have great rights and opportunities to control production promptly and make decisions. Flowlines need not be controlled from above; it is sufficient to give them an assignment, arrange for support, and provide a work front.

Ye. B. Kibalov: KTP's are undoubtedly the work organizations of the future, organization-programs. They were created for a certain crucial national economic need. The problems arising here are new, complicated and unprecedented. A special type of production systems are required to solve them. The KTP is one of these. The specific features of the goals of the flowline lead to a situation where after the program is carried out, the flow line must produce a new program or disband. The program presupposes the performance of a large volume of work in short periods of time. Hence the requirement for significant mobility of the KTP, if only because there is simply no time for the development of a base for conducting the work in the region. The load should be predicted for a long period of time. The rear base--both the production and social base--can be located in one of the inhabited regions of the country.

V. A. Alyutov. There is no doubt that a change in the goals and conditions for production requires organizational restructuring and changes in the technological process, frequently deep ones. At the same time any organizations strive to retain its integrity and stability. Such is the contradiction and it is manifested fairly strongly when the activity is evaluated, as for construction workers, by the gross output. The Minneftegazstroy has found a positive resolution to this contradiction, and the KTP's are actually target program production structures.

Yu. R. Anpilogov: Payment for the final product and stimulation of the workers for performing concrete assignments in physical measurements have changed a great deal. But this can be realized effectively only under the conditions of stable lower collectives which are granted real rights and responsibility. Yet the labor collective has not been legally granted the right to stability of its composition and program of work. In practice the formation of flowlines, brigades and the loading of brigades are determined by the administration, frequently without long-range planning, under the influence of immediate necessity. Even when there are contractual commitments within the framework of the brigade contract the necessary conditions are not created for the collectives to carry them out, in many cases the contract brigades are disbanded, and transferred to objects that are not envisioned in the cost-accounting agreements. This makes it impossible to maximally utilize the advantages inherent in the structure of consolidated collectives that are oriented toward the final product.

B. S. Vaynshteyn: M. D. Mamin-Sibiryak wrote that from time immemorial Russians have worked collectively. The ambitious collective decided not only how to continue to exist, but also how to perform a maximum of work. Legal experts have defined it this way: the labor collective is recognized as a fraternity formed for the production of particular work or an industry with the personal labor of the participants donated for their common good and with their all-around responsibility. Earnings are distributed among members of

the collective according to the participation of each in the work of the collective by a decree of the general meeting. So the appearance of KTP's is quite logical from the social standpoint and justified historically.

What problems does it cause?

G. I. Shmal: The KTP has the same historical collectivity in the way it is currently understood. They are included in a trust which also includes other organizations having the rights of participants. Today there are flowlines based on comprehensive construction administrations. There exists the opinion that they are the ones that operate best of all. The fact is, unfortunately, that today the very truncated administrative and management personnel of the KTP's are given functions which are not envisioned for them. The flowline is a direct production unit which should engage directly in the fulfillment of the production assignment. Questions of planning, supply and so forth should be the responsibility of the trusts. I am suggesting that not everything has been worked out here.

A. P. Veselyev: It is necessary to change the structure not only of the flowlines but also of the trusts. But how do we change the structure of the trusts so that they are flexible and can be adjusted on the spot, depending on the conditions of the territory and the peculiarities of the construction of various mainlines, so that program production collectives are created for the time of performance of concrete jobs? Everyone, including scientists of the branch, must still do a considerable amount of work on this.

V. A. Alyutov: KTP's as target program structures are formed on the basis of the trust's resources and operate relying on its stability. And they can be temporary. The experiment confirmed that the comprehensive flowlines that are operating in various natural and climatic zones constructing sections of pipelines with various planning specifications must have differences in their organizational construction, the composition of the normal set of equipment, and the technology that is applied. Moreover, the corresponding changes in the technology, organization and management must be made regularly, as new tasks and new construction conditions appear. Therefore it is possible to have KTP's without close connections with the service and auxiliary productions of the trust and constant maneuvering of resources within it as a unified organization. The excessive autonomy (collective autonomy) of flow lines would inevitably lead to a loss of their main advantage--flexibility. Hence the greater requirements for planning.

I. I. Mazur: There is a need for accelerated engineering support but it frequently turns out that the flowline has completed its work and the engineering and technical subdivision which is to proceed ahead of it has been left behind. As a result, some of the engineering operations have had to be turned over to the flowline.

L. M. Chernyak: Disparities have appeared in the levels of wages of subdivisions that are technologically strictly connected to the flowline. As a result we do not obtain prepared pipeline promptly. It is not enough to lay it and then cover it up; it is necessary to test things: to approve an act of the state commission which confirms that there is a commercial construction

product. We have singled out and provided incentives for only some of the brigades that are engaged in the basic kinds of work, but we have not created incentives for collectives that do road construction and delivery pipes and other cargoes. Therefore we are not yet receiving the maximum possible final results.

Additionally, the staff of the trust does not centralize in its organization the number of management functions because it is not given incentives for achieving the final result. The flowline is forced to do a significant part of the work associated with statistical reports, orders of material resources, and so forth. This volume has increased sharply as compared to what it was previously at the level of the administration.

I. G. Shaykhutdinov: There is a difficult situation with the servicing of technical equipment and supply. The machines are aging and it is becoming more and more difficult to service them. The Road and Transportation Administration, in my opinion, has been generally eliminated, and its functions have been transferred to the flowline. Engineering and technological preparation lags behind. It is the trust's task to overcome these difficulties. I am against placing the flowline under the jurisdiction of the construction and installation administration (SMU). Mainly because of the wages. The trust will be the first to change them, and then the SMU. And the flowline workers will have no motivation left.

Ya.-S. A. Myakush: Our equipment has been wearing out and we have no repair shops. We repair it under primitive conditions: "lying on the ground." And the imported technical equipment is complicated and requires precision regulation. Clean surroundings are needed: when it gets dirt in it the mechanism breaks down. The flowline should be under the jurisdiction of the SMU which has a base, shops, and repairmen. The trust does not have this.

A. M. Mikhaylichenko: Three years ago the concerns for the KIP's were on the shoulders of the trust. But the trust still retains its previous staff distribution charge. And this impedes the achievement of the best results.

V. I. Mazur: The trust was intended to coordinate the associated organizations, to plan and to provide for supply. But this is not what happened, and mainly because the trust is not interested in this; it still has its previous staff and functions, and its rights and responsibilities have not changed. The trust has carried out only some of the new tasks, when the managers have been interested in them. Since many administrative tasks have been left up to the flowline as the general contracting subdivision, the engineering and technical personnel, in spite of the assumption that they would have more time to engage in production and increasing its effectiveness, are tied up with paperwork.

V. I. Satarov: We workers feel the need to accelerate construction and we would like to do this, but we are not always able to. For example, we completed the Urengoy-Tsent-2 section in June, but it was not accepted for inspection until October because there was no equipment. Naturally, the forces that should have been transferred to another pipeline were retained here. And then on the Kholmogory-Klin route we worked without a unified contract. We did not have a clear-cut plan and there was no certainty about where to lay the pipes. When we arrived at the place, the heavy bulldozers had not been delivered there and there was a great deal of confusion because the earth had not been plowed. This holds up our work. Our flowline works on the basis of an SMU and not a trust. I think this variant is more acceptable. The SMU is directly interested in the success of the activity of the KTP, and it has a more organized repair service. It is more difficult to arrange for daily needs through the trust, and the SMU has its own construction group which engages in this. It always offers qualified welders to fill in, since we do not have enough of them during the time of summer vacation.

EKO: So for each variant it is more expedient to establish whether the KTP should be in a trust or in an SMU?

V. A. Alyutov: Today it is difficult to give a simple answer to this question. Further development of the KTP's requires as a mandatory step a changeover to planning the organizational structure and calculations of the production capacity. Plans as the technical and economic substantiation of the most expedient technological and organizational decisions should serve as a basis for their legal formulation. Standard organizational-staff norms adopted following the example of extensive construction are not suitable for this purpose.

Ye. B. Kibalov. A problem naturally arises: how does one include the KTP in the existing organizational mechanism? We have not heard any final answer to this question. Does this mean that the new form of organization of production is not included in the structures of the traditional linear-functional management? In our opinion, there are three answers as to what to do with the KTP in the management sense.

First. One of the participants in the work is made responsible for the functions of the general contractor, which is widely done in construction. Second. Those in charge of carrying out the program are under dual jurisdiction: of the managers of the program (flowline)—temporarily, and the manager of the specialized subdivision (SMU)—permanently. And the third. A comprehensive subdivision which carries out the program and becomes an independent economic unit.

In the Minneftegazstroy there is a combination of all three types of management. But where does one go from here?

If one is to strengthen cost-accounting principles one should strive not for integration of engineering and technical personnel and employees in the brigades with payment under a single order, but toward the creation of a financial management program that interacts with the technical-technological program (that is, with the labor brigades) on a cost-accounting basis.

While providing the labor brigades with engineering services, materials and mechanisms, the leadership of the financial and management program should acquire from the comprehensive brigades prepared parts of pipelines, and from the suppliers--materials and necessary services. And then the prepared kilometers of pipeline systems should be sold either to the management of the general contracting trust or directly to the client. All expenditures are financed by the Stroybank through the financial management program. This approach guarantees an orientation toward the final result not only on the part of the workers, but also on the part of the engineering and technical personnel, employees and administration of the flowline, which also serves as a real basis for construction that is "completely ready." Such is the fourth solution which follows from the three that have already been found in the Minneftegazstroy.

Keys to "Completely Ready" Construction

EKO: And now, having climbed the rungs of the management ladder, let us take a look at what is happening in the stage of planning, where the appearance of the KTP should present considerable additional troubles.

L. M. Chernyak: Perhaps a new system of planning and evaluation indicators is needed, one which is oriented toward the achievement of the final result by all participants in construction. We need a system of mutual responsibility so that the guilty party will compensate for the losses to the partner who has been idle not by his own fault, so that they will be linked by strict economic and material interests. In other words, a need has arisen for an efficient system of contractual relations along the vertical and horizontal.

M. P. Karpenko: Of course if the trust has only flowline and all of the rest of the work is done by traditional methods, it is easy to provide a work front for the flowline. But if the trust's entire construction program is carried out by flowlines, it must be stable and it must be known no less than 3 years in advance. And this depends on planning in the central production board and also generally on branch planning and the planning of the client ministries and the USSR Gosplan.

We were first of all the construction branches to develop a program with a breakdown for each year of the 11th Five-Year Plan. We also have one for the 12th Five-Year Plan. Such a program should be coordinated with the deliveries of pipes, materials and items, it should be balanced with the production capacities of the construction organizations and, the most important thing, it should be optimized with respect to the utilization of capacities. From a purely scientific standpoint this is a significant unifying task in the six-dimensional space of parameters.

G. I. Shmal: The organization of KTP's placed on the agenda even more pointedly the mandatory continuous, as a minimum, 2-year planning, which we do not have today either in industry or construction. Frequently the flowline has completed one project and must go on to the next, but we have not prepared for this.

L. M. Chernyak: Inspections in the flowlines have shown that sometimes when there is a reduction of labor productivity wages increase. We have also revealed an artificial increase in wage funds for workers and engineering and technical personnel. Wages paid under an order, even if it is a unified one, do not preclude unjustified increases.

Ye. B. Kibalov: How can it be that with a unified order labor productivity decreases and wages increase? After all it is clearly written in the order how much must be introduced and how much the wages will be? Or is the order drawn up incorrectly?

P. M. Chernyak: Yes, in a number of cases the orders have been drawn up incorrectly. And the initial data used for calculations were too low. In other words, the overexpenditure was already included when the orders themselves were drawn up.

EKO: Output achieved in the base period can be decreased when working under a unified order. But then in the "base" it was measured in rubles, while now it is measured in kilometers and, after all, the method of measuring the output is of principal significance. Or do we understand this incorrectly?

L. M. Chernyak: The Main Planning Administration also evaluates it in kilometers. In a number of cases when orders are given the volumes are reduced precisely in physical indicators, and hence the artificial increase in wages. As a result, in one of the technological flowlines of Glavvostoktruboprovodstroy in the first quarter of 1984 the output in physical indicators increased by 20 percent as compared to the first quarter of 1983, and in monetary terms it decreased by 8.4 percent, and the average wage increased by 45 percent.

Yu. R. Anpilogov: This can be explained by the fact that in comparable periods we do not take into account the significant change in the structure of the work or the difference in the prices of imported and domestic pipe, and the structures for paying the wages are also incompatible. On the whole the results of the work, for example, on the Urengoy-Tsentr-1 route show that the growth of labor productivity in all the flowlines where the experiment has been conducted significantly outstrips the growth of wages both in physical and in value measurements.

EKO: Still it is not clear whether it is possible for the wages to exceed the amount planned for the flowline or not?

Yu. R. Anpilogov: In general this cannot happen in a flowline that has a unified order for the sum of the order calculated according to the existing norms is objective and unchangeable. The wage fund can be adjusted because of unforeseen circumstances or weather conditions, for which a separate sum is envisioned, but the adjustment cannot exceed this sum.

Yu. P. Filippov: Actually, we have rid ourselves of artificial increases. Additional orders are not written and if they are issued for work that is not taken into account, it is only under a document that is approved by the trust's head engineer.

A. M. Mikhaylichenko: I should like to add that, for example, the growth rate of wages on the average for the SMU was 6-7 percent, while for the KTP it was only 2-2.7 percent.

EKO: The planning of labor and wages in the KTP is beginning to seem like the tip of the iceberg. It is not enough to organize the flowline and to put it into operation; a great deal more is required. And this dispute of ours is revealing disharmony in the planning for the flowline. Has the necessary coordination been found?

L. M. Chernyak: The new system of wages under a unified order diverges from the existing system of planning. According to existing provisions, the normative of wages per 1 ruble of volume of work is set for the trust and its subdivisions. But here another normative appears: for 1 kilometer of pipeline that is laid. This is a very serious "scissors."

EKO: But what do they cut?

L. M. Chernyak: Not all work can be measured in kilometers: For example, the construction of warehouses, thoroughfares that are not on the route, initial accounting for materials and so forth). Because of this we have not changed over to the unified order the PMK's (mobile mechanized columns) that do engineering preparation of the route or road and transportation work.

Yu. R. Anpilov: The indicators for labor in value terms are sent down from above, and they are the same both for the ministry, main board, trust and administration, on the one hand, and for the brigade, on the other. In essence this is actually not planning, but rather numerical distribution whereby the indicators are then conveniently "stored" in the reports and analyses at various levels, and the distribution is done without technically substantiated normatives, from the level that has been achieved.

G. I. Shmal: The ministry has developed and approved guidelines for the new methods of management that are directed toward accelerating the construction of main pipelines. They also regulate the interrelations among all participants in flowline construction.

L. M. Chernyak: The Ministry has prepared proposals for experimental testing of the new methods of management in pipeline construction trusts, for which permission should have been given by the interdepartmental commission under the USSR Gosplan. These still have to be approved in several trusts.

D. I. Cheglakov: From the standpoint of the Stroybank it is important for the activity of the KTP to be planned and evaluated according to the results indicated in the documents that are signed for the laying of the pipe. But today the Stroybank issues 40 percent of the credit for projects that have not met their deadlines. This sum amounts to from 1.1 to 1.2 billion rubles.

B. S. Vaynshteyn: The "scissors" about which Lev Mikhaylevich Chernyak was speaking exists between the flowline, on the one hand, and the "gross output" toward which everyone is oriented (the SMU's, the trusts, the boards), on the

other. Either the "gross output" will be abolished or the flowline will not be able to withstand the competition. We now hear that there are artificial increases and monstrous overexpenditures of the wage fund in the flow lines. Yet we completely forget about the fact that labor productivity according to the "gross output" means an increase in expenditures: the more expensive, the better. Our ministry for several decades now has been going to the directive agencies with a proposal to work according to the "completely finished" projects. This proposal was accepted in spite of the opinion of many contracting construction ministries. But still everything amounts to presenting the final product by the time of release and not individual kilometers, as is indicated here by the representative from the Stroybank. If we will do the building in terms of the "completely ready" project, the brigade flowline will survive.

According to Labor and Wages

EKO: Something had to be changed in the existing organization of wages. What, precisely, was it?

Yu. R. Anpilov: The existing system of material incentives in construction had largely lost its economic significance. In my opinion, the actual payments were no longer linked to the output of products. People are traditionally paid by the month, for performing individual kinds of work, and not for the final product. Workers and engineering and technical personnel, especially line workers, are separated with respect to wages, even though they are included in the same collective and work for the same result. Current bonuses are traditionally given by the quarter and are bound to the funds of the trust, which are formed according to indicators that are far from realistic.

In the comprehensive technological flowlines as an experiment we have introduced wages and bonuses for all categories of line workers under a unified order for the final product--the kilometer of pipeline that has been constructed and released for testing. Then the organizational basis for incentives for the workers was the cost-accounting agreement-commitment which was concluded between the flowline and the trust. It indicates the actual number of workers, the sum of direct wages and bonuses on the whole and per 1 kilometer of pipeline, the normative time periods for construction and those agreed upon in the assignment, and the monthly assignments in physical measurements. The collective's commitments for reducing the planned production cost of the work and bonus sums for this reduction are also calculated and included in the agreement.

Why Does the Cleaning Lady Earn 160 Rubles?

EKO: How are the earnings of the collective of a comprehensive technological flowline formed?

V. V. Bakerin: The unified order includes: 1) the earnings of the piece-rate workers for which a consolidated normative is calculated per 1 kilometer, taking into account the conditions of the route, that is, its difficulty with respect to the various kinds of work that are performed; 2) the sum of wages

of engineering and technical personnel and employees, which is determined on the basis of salaries and service normatives approved in the branch, and the number of line personnel and workers for repairing the technical equipment. The overall sum of wages is included in the unified order, taking into account the normative time period for construction. The sources of bonuses are determined separately for workers and engineering and technical personnel. The amount of the bonus for engineering and technical personnel is linked to the final result of the activity of the flowline. The more kilometers the flowline has produced in the shorter time periods, the greater the sum of bonus payments for the engineering and technical personnel. Initially on the route of Urengoy-Pomary-Uzhgorod they took into account a unified coefficient of "additional earnings" both for workers and for engineering and technical personnel. Sociologists pointed out that such an approach is defective.

Yu. R. Anpilogov: Completing the assigned sections in the shortest possible amounts of time increases not only the direct wages of the workers, but also the bonuses for all workers.

EKO: The existing standard provisions for forming and distributing wages of production brigades apparently do not "join" with the organization of wages in the flowlines. How are these divergences eliminated?

V. V. Bakerin: We have been considerable assistance in the development of provisions and methodological guidelines for the formation of a unified order by the division of construction, the timber industry and construction materials of the USSR State Committee for Labor and Social Problems. We have been able to find a common language.

V. I. Satarov: Everyone is familiar with the KTU (coefficient of labor participation) which is applied with the brigade contract. In our flowline of the Mosgazprovodstroy it is established at from 0.5 to 1.5. Everyone can see that the welder does the most labor-intensive work. Yet the maximum KTU is for the operator of the pipe-laying machine. In the winter he is warm while the welder is out in the snow. Sometimes the machine operator's earnings are higher than those of the welder. This injustice must be eliminated.

V. V. Vakerin: In the document establishing the earnings for various categories of personnel we tried to apply equalizing coefficients, for example, 1.5 for the welder and 1.4 for the machine operator. But the disproportions remain. The fact is that the wage rates for an operator of heavy equipment is 95.9 kopecks, and for the welder with the highest skills it is 79 kopecks. Even additional payments for harmful working conditions with an equalizing distribution of wages does not lead to compensation for the more difficult working conditions of the welder. We suggest that if it is within the competence of the ministry that the range of the KTU be expanded to 1.7.

Frequently complaints are made about the complexity of the formation and distribution of the collective earnings for members of the brigades. Do you encounter this in the flowlines?

Yu. R. Anpilogov: The system of incentives that is used is simple and comprehensible. It makes a direct connection between the ruble of wages and

the kilometer of pipeline prepared for testing. The fulfillment of assignments for increasing labor productivity and the ratio between the rates of increase in labor productivity and wages and the reduction of the production cost of work are taken into account ahead of time—when calculating the indicators and preparing the agreement. The indicators of the agreement are established directly in the flowline, and are not sent down from above according to the traditional schema, based on what has already been achieved.

V. V. Bakerin: The entire system of calculations is simple and is carried out by the Center for Scientific Organization of Labor according to agreements with the trusts which are the clients of the flowlines. One small book contains the provisions concerning the unified order, the piece-rate order itself, the technical and economic indicators, the cost-accounting agreement-commitment, the staff distribution and so forth, which are approved by the client, the management of the trust, and are assigned by the chief of the KTP. The earnings are issued once a month under a special document instead of using many orders as was previously the case.

Yu. P. Filippov: Knowing the monthly assignment for the flowline and the daily output, the leader of the brigade of welders no longer sees any point in getting far ahead of the insulation and pipe-laying column, if the flowline is paid only for the prepared kilometer of pipeline. In this situation the brigades are willing to help one another both with technical equipment and people, and also with friendly advice. If the monthly assignment is fulfilled there is a bonus for everyone. When distributing the bonuses and the "additional earnings" the council of the brigade and then the council of the flowline take into account the labor contribution of each, his attitude toward labor and labor discipline. The distribution of the earnings by the councils of the brigades and the flowlines is essentially an expansion of the rights of the labor collectives and a deepening of the elements of local democratism. Now the evaluation of the work of each worker is provided by the collective, and this is of immense educational significance.

I. I. Mazur: At first glance the most comprehensible is the system of wages which is constructed individually: the piece-rate worker knows, for example, his wage rate and the output norm, and he counts on earnings in keeping with the performance of "his own" operation. But today we are carrying out "our" collective operations. This contradiction, however, is overcome with the help of general interest and responsibility.

Yu. R. Anpilov: The labor collectives have become indifferent to how many millions of rubles' worth of construction and installation work they perform: for current bonuses are awarded for the fulfillment of assignments and commitments in physical measurements—kilometers of pipeline. The crucial problem of "we did not receive enough" appears in a different light now. It is not "not enough," but how much they earned. After all, everyone is interested in money, and each month the collective is given an advance from this sum according to the kilometers of pipeline that have been released for operation.

V. V. Bakerin: Somebody from the outside asks in confusion: "Why does the cleaning lady in the flowline earn 160 rubles? What does she do, wash the

floors twice as frequently or twice as clean?" But these are the earnings not of the cleaning lady, but of a member of the KTP. Previously it would have been difficult even to imagine what is being done today: laundry and cleaning workers who are included in the KTP's help to do loading and unloading work in order to accelerate the dispatch of materials to the pipeline route. Previously nobody could have made them do this. But now the cleaning lady works twice as much—for the sake of the overall result and the earnings of the flowline, and not just for herself.

Yu. S. Semenyuk: The situation with associated workers is complicated. They say: "You have higher wages—you should work more."

I. I. Mazur: Yes, associated workers—workers from road and engineering-technological subdivisions—participate in the overall process and live in the same settlement with KTP workers. Frequently two supervisors will live together in the same railroad car, and one of them who works in the KTP earns 450 rubles while the other earns 180 rubles. We have not found a form whereby we could enlist subcontractors and everyone would receive equal pay for equal work. In the flowline, for example, there is no shortage of engineering and technical personnel or workers in particular specialties. In the associated subdivisions this is a constant problem. If the flowline has the need for a worker or a specialist, the worker immediately comes from the subdivision of the associated organization.

Yu. R. Anpilogov: It is necessary to develop a unified system of incentives for workers in all subdivisions that are engaged in the technological process, including the staff of the trusts. It is necessary to reinforce this kind of payment for labor legislatively.

Friendship is friendship, but money?

EKO: During our discussion we have brought up the work of scientific, management and engineering personnel several times. The successes and failures of the new form of organization of production depend largely on them. How do the functions and labor of engineering and technical personnel change in a comprehensive technological flowline? What are the peculiarities of the payment for their labor?

Yu. P. Anpilogov: The experiment was conducted in the most "painful" area of the organization and payment for labor—in line construction, where there has been the greatest disparity between the wages of workers and those of engineering and technical personnel. Here one can see most clearly the tendency toward reduction of the motivation of line engineering and technical personnel to achieve the final results in shorter time periods and to increase the effectiveness of production.

V. I. Satarov: For the first time engineering and technical personnel have felt that attention was being paid to them and to their wages. Previously the foreman always had to be with the brigade and he received the same salary of 145 rubles. Now his earnings have increased and along with them his interest in the final results and responsibility for his work.

Yu. P. Filippov: The idea of including line engineering and technical personnel in the unified order has proved to be justified. When issuing assignments to the flowlines for a long period with a previously set cost of each kilometer, we thus relieve the line engineering and technical personnel of monthly work with orders. The engineering and technical personnel have more time left for solving organizational and technical problems.

V. V. Bakerin: The unified order has increased the motivation of engineering and technical personnel both to carry out the task set for them with fewer workers and to search for new reserves and reduce expenditures of resources. On the whole there is a higher level of provision of material and technical resources and supply of the work front for the KTP on the part of trusts that are playing the role of client under concluded contractual agreement-commitments. Their mutual demandingness and overall responsibility for high-quality and rapid release of pipelines for operation have also increased.

A. A. Serdyukov: The unified order has affected the hearts and minds of people and the interrelations between workers and engineering and technical personnel. I recall how previously the foreman would receive 145-160 rubles. He would issue an order for electrodes and then go get them himself. Now he is always at the production site. The workers now value the work of the engineering and technical personnel.

I. I. Mazur: In the flowline the engineering and technical personnel is no longer bothered by the way wages are constructed. He is interested primarily in the final product which, naturally, determines his earnings as well. He is thinking about how to mobilize the workers to fulfill the assignments and how best to apply his own knowledge, abilities and skills.

V. V. Bakerin: Bonuses for engineering and technical personnel have been made directly dependent on their organization of the work of the collective. In the flowline the number of administrative and management personnel has decreased and can decrease even more.

I. I. Mazur: In the cost-accounting flowline there has been a considerable increase in the role and responsibility of the manager. The chief of the KTP is now the head master, a visible and important figure. When conferences are held on the intercom, for example, the presence of the chief of the flowline is quite sufficient for making decisions. And there are no complaints if the chief of the flowline reports to the ministry on the intercom. Previously it was necessary to have the manager of the trust or his deputy, who was present on the spot and organize the work.

Yu. S. Semenyuk: It is convenient for me as the flowline chief to be in charge of all jobs that are carried out on the route. In the flowline (and we are employed on a difficult section) a large quantity of technical equipment is concentrated. If it were in the hands of various organizations it would be difficult to perform the entire volume of work and short time periods.

I. G. Shaykhutdinov: In our flowline we do not have a unified order. And this is bad. The workers, of course, have not lost anything, but the engineering and technical personnel.... A unified order and high wages are

necessary for the manager, who gets up earlier than the workers do and goes to bed later, but his earnings are not sufficient for the conditions on the route.

EKO: But bringing the interests of the workers and the engineering and technical personnel closer together, which is what we are discussing at the present time, is not proceeding smoothly. Valeriy Viktorovich Bakerin has already emphasized the defects in having separate sources of bonuses for workers and engineering and technical personnel. It is precisely a unified bonus coefficient that will contribute to bringing their interests closer together. For is it really possible to separate the "head" from the "arms"? Since the products are created by all categories of workers, the bonus funds should not be separated. It should not look as if when they are distributed one is taking from the other. Everyone should receive what he has earned.

A. D. Khaytun: How can this be done in actual practice? After all, there is also a division of the wage fund. In the first stage of the experiment, when there was a unified fund, it seemed to certain workers that engineering and technical personnel were "extracting" wages from their pockets, which did not correspond to reality. Unfortunately, there arose stereotypes from which certain workers think that it is quite natural for their wages to be 2 or 3 times greater than those of the engineer. In this case the division of the wage fund exists in a positive direction. Only life will tell what will happen in the future.

B. P. Kutyrev: When Valeriy Viktorovich Bakerin said that the sociologists had discovered the "defects" of a unified coefficient of "earnings" for engineering and technical personnel and workers in the flowline I could not but recall the results of our Novosibirsk experiment in applying the collective contract in the sections, shops, and other structural subdivisions. They show that there was a striving for separation between the workers and engineering and technical personnel, although the goal of the experiment was to bring them together. It was precisely the unified bonus coefficient that brings them together.

The KTP and Scientific and Technical Progress

EKO: It seems to us that the problem of wages for engineering and technical personnel in the flowlines, managers and branch scientists, which has not yet been resolved in a new way in the USSR Minneftegazstroy, depends directly on scientific and technical progress. Is this not so?

I. I. Mazur: The application of new technical equipment is among the advantages of the KTP. In the main board, for example, there are 2,000 welders. We have no problems with welding; it always proceeds ahead of schedule. The work of the welders is skilled, they are paid well and they never "hold us up." One may wonder why introduce the installations "Styk" and "Sever" for welders, who earn good money and are always working ahead of schedule? It would seem that there would be no point in letting a machine take care of the running gross volume and switching over to work that is not so advantageous and is more labor-intensive. In the flow line this factor has no effect. And now welding with machines is advantageous since the overall

number of workers decreases and the welder will carry out labor-intensive operations without losing earnings and, on the contrary, will increase his qualifications. It is difficult for me to say whether or not this is advantageous for engineering and technical personnel, managers and developers of new machines.

Yu. S. Semenyuk: We devote a great deal of attention to new technical equipment. For example, we have introduced the "Sever" installation for contact welding which has proved itself well, and also effective equipment for monitoring the quality of the welded joints. I think that our KTP structure and work under a unified order contribute to the interest of all workers in introducing new technical equipment.

M. P. Karpenko: In the branch they have created technical equipment and technology that make it possible to construct pipelines with various diameters at rapid rates--up to 1-1.5 kilometers a day. And these were not created simply on the basis of enthusiasm.

L. P. Klyuchnikova: What assistance can branch science render to the production workers?

B. S. Vaynshteyn: Our institutes--the VNIIST and the NIPIORgneftegazstroy--do not exist in order to give advice to the production workers from the shore on how to swim into the ocean of the scientific and technical revolution, which is frequently the case. They are called upon to engage directly in the system of economic management and show from the example of at least one or two trusts, associations or main boards how to organize the immense potential of the new technical equipment.

I shall make a proposal that each of our institutes include in its system one trust, take on complete responsibility for the results of its activity, and show in practice what the mechanism for economic and social control of scientific and technical progress in petroleum and gas construction should be. This would open up the path to more obvious material incentives for specialists and managers who are working outside the flowlines but in the final analysis are working for them.

Even a "Nomad" Needs a Home

EKO: Sociopsychological factors exert an immense influence on the improvement of management and the interaction of people in the process of production. Almost all participants in the "round table" have touched on this in one way or another. But it seems that there would be some point in discussing it in greater detail.

A. D. Khaytun: Social issues have been manifested very sharply. This is shown by the large amount of sociological research on collectives of the flowlines: during 3 years more than 1,000 questionnaires and interviews have been conducted. Certain flowlines have been investigated more than once. It turned out, in the first place, that although more than 80 percent of the workers are in favor of the experiment, there is still no unanimity among them. Workers with high skills, for example, welders are dissatisfied. The

relative level of wages has decreased to a certain degree in our collective. But the dissatisfaction does not lead to increased labor turnover. On the contrary, the stability of the collectives as a whole and for the given group has increased. In the second place, in addition to wages, housing conditions for the workers over the long-range future are very important.

B. S. Vaynshteyn: I would say that the technological flowline with the distribution of earnings according to personal labor was received by the people with understanding, even warmly. Mutual assistance, mutual gain and justice in the primary unit of production—herein lies the moral force of the KTP.

V. K. Kashin: Improvement of the psychological climate and mutual assistance—these are both the guarantee and the method of obtaining a high economic and social effect from changing over to the unified order. Additionally, a democratic style of management is required here. High effectiveness from the introduction of the unified order was achieved in those organizations in which attention to the collectives and to the people was a typical characteristic of the manager.

The changeover to a unified order requires the observance of a new condition: interbrigade contacts and mutual relations. If the brigades do not influence one another there is no collective of the flowline (in the scientific understanding of the term "collective"), there is no increase in labor productivity, and there is a conflict between the brigade and the administration and, as a result, a rejection of the unified order. Where and how can this condition be met if the brigades are working along a route in different places? Interbrigade interactions can take place only when there is a single field settlement for the entire flowline, which has developed cultural and domestic conditions. In this case the settlement is not only a place for physical rest, but also for the development of the collective.

EKO: Are the specific features of mobile construction coordinated with the social prospects of the workers? What contradictions arise? What can be done to eliminate them?

A. P. Veselyev: We still do not sufficiently take into account the specifics of the transient way of life and we are not displaying the proper persistence in providing our permanent personnel with the necessary social conditions. As a result there are serious distortions and lacks of correspondence concerning social issues.

I. I. Mazur: The necessary living conditions have basically been created for production, but the question is where the workers on the flowlines will have their permanent place of residence and their housing? This again is a concern of the trust, but they do not give us an answer to the question. Here we need a clear-cut position which will also determine the clarity of the social prospects for workers in the flowline.

I. G. Shaykhutdinov: People want to know what their future life will be like, and this is a primary concern. Where and when will they receive an apartment, for example?

Yes, people who come to work for us are always interested in their future. All right, we shall work here, but what happens then, where will we live? At work it is clear: there will be a line to Yamburg. I think that the desire for a "settled" life should be realized in the region where the trust is located.

A. P. Veselyev: What is a flowline? It is one thing when you have an ordinary administrative unit--SMU, SU or PMK, but when this is a temporary target-program organization created for carrying out one task? The people do not want to go to the flowline if they have to stand in line for an apartment somewhere or if they can see prospects for solving their own personal problems. The basic social ties between the worker and the trust and the city where he permanently resides are broken if he goes to the flowline.

Thousands of people in field settlements live as families. But why play the nomad with women and children? For a year or two when a person is young and has not been anywhere yet this is all right, but we have already had grandchildren being born in field settlements. Former young workers who did not think ahead of time about their permanent residence end up in their middle years with actually nothing. Letters come in from those who were previously satisfied with the nomadic life (it also has its good points). It is necessary to go on pension--but what about the housing? They are registered in Shchekino but they work in the Urals. In one place an apartment has already been allotted but there the local authorities announce that the person is not registered here or is working in quite a different region.

In order to answer these questions, which are typical of more than just our branch, it is necessary legislatively and legally to reinforce the established provisions which would provide people with an answer to their living problems.

A. D. Khaytun: I notice that the flowlines which have high production results are the ones which have created the best living conditions. So there is a fairly close connection between the social-domestic level for life on the route and the effectiveness of the activity of the flowlines.

V. I. Satarov: Since the very beginning of the experiment our daily life has improved as well. For the first time a large settlement was constructed for us with all the conveniences.

Yu. S. Semenyuk: The creation of large KTP's made it possible to solve a multitude of living problems? In our settlement there are about 500 people. It has central heating and water supply, there are facilities for cultural leisure, and there is an administrative building with domestic services and a movie theater.

Ya.-S. A. Myakush: There is no doubt that living conditions have improved. I have been working in the branch for 25 years and I remember times when we lived in tents and railroad cars. Today we live in well-built apartments. Everyone has a color television set and rugs. The settlement has central heating. We have our own bathhouse, stores and dining room. In a word, we have everything. We do not change our place of residence for 3 years.

Yu. G. Ivanov: In the branch today there are more than 1,000 field settlements where up to 140,000 people live. The housing fund for the settlements along the route is composed of 55,000 railroad car houses and various blocks of mobile housing and amenities. In places where the managers of construction subdivisions have created good living conditions for the workers the production indicators are higher. Let it suffice it to use as an example the field settlements of Uzhovka, Krasnaya Mecha, Zubova Polyana and Shemordan where the workers of our leading comprehensive technological flowlines live. Everything exists here for normal life and recreation of the builders: central heating, water supply, a dining room, a store, receiving points, consumer service combines, and there are libraries and recreation facilities. The settlements have radios and there are movie theaters and television sets, sports sections are operating, and there are circles for independent artistic activity. In 1983 the ministry adopted a document which regulates the policy for designing, staffing and constructing field settlements and watch villages. This document improved the living conditions on the routes. Thus the number of settlements with central heating increased to 52 percent, centralized water supply--to 40 percent, 70 percent of them have radio programming, 86 percent have the possibility of receiving color television programs, and permanent move installations are operating in 15 percent of them.

A. P. Vesilyev: But we think that the planning agencies must take into account more fully the specific features of transient construction and the conditions of the territories on which we work, and refrain from equalizing the distribution of capital investments in the nonproduction sphere among the branches. We are prepared to use our own funds for social measures and housing construction, and the workers have the possibility and are expressing a desire to invest money in housing cooperatives.

One must say that not all of the facilities for transient housing and consumer services meet modern requirements; many of them are obsolete and do not have the necessary selection of furniture or auxiliary premises. It is necessary to improve the quality of the production of railroad car homes and blocks of housing and domestic facilities. There are not enough kinds of mobile buildings. There are practically no facilities for engineering support. It is time to create large enterprises for producing railroad car houses, mobile dining rooms and dormitories that are made of sets of blocks as well as other kinds of housing and consumer service facilities.

The Future of the Experiment

EKO: What are the prospects for the spreading of the experiment in the branch?

G. I. Shmal: The ministry has developed and approved guidelines for new methods of management which are directed toward acceleration of the construction of main pipelines. Understandably, the process of their improvement must continue. Incidentally, these materials envision the introduction of a system of physical and value indicators which are more completely oriented toward the completed construction product and reflect the

contribution of each participant to its creation, and they also consider questions of improving planning calculations and so forth.

A. P. Vesilyev: While sharing the opinion about the high effectiveness of the KTP, I wish, however, to indicate the limits of the rapid dissemination and direct reproduction of the conditions of the experiment. Although the KTP works on a route with a distance of 4,500 kilometers, the "field" of the experiment is relatively narrow and it does not encompass the entire diversity of the activity of the Minneftegazstroy or even line construction as a whole. The experiment has been extended to laying pipelines with a diameter of 1,420 millimeters—approximately 20,000 kilometers per five-year plan. The other 80,000 kilometers of pipeline with other diameters have been constructed under the traditional conditions.

In order to extend our experience it will be necessary to answer a number of fundamental questions. When the previous nomadic life begins because of the change of the corridor (previously we have built one route through the Komy ASSR, then through the Urals, and then again across the Komy ASSR) there will be quite different problems which we do not know how to approach without wasting valuable experience that has been accumulated during the 11th Five-Year Plan. Moreover, in such regions as Kazakhstan and Astrakhan we do not anticipate a large concentration of work and, consequently, there will be no large effect. Therefore it is necessary to be realistic and not excessively increase the evaluations and results of the experiment.

G. I. Shmal: Flowline organization is necessary not only in line construction, but in all spheres of the ministry's activity. At the present time an experiment is being conducted in its application in industrial construction (the brigade of N. P. Nezhdanov) and housing construction (the brigade of I. B. Smirnov).

I. I. Mazur: The experiment has been in progress for 3 years. But what kind of an experiment is it when we know everything very well already? We know how the management agencies are supporting the dissemination of the brigade contract. But the local offices of the USSR Stroybank are interrupting this. Previously it was necessary to spend a very large amount of time persuading people to change over from the welding trust to the flowline. There was a lack of understanding and it was necessary to demonstrate and convince people. Now there is no need for proof. But why today, when we have already reached Yamburg and when the KTP has shown itself in its best light, can we not conclude agreements concerning the unified order? I was unable to answer this question, which several of the flowline chiefs in attendance here asked me. It is necessary to take a clearer and more correct position. Our main board "turns over" approximately a billion rubles' worth of construction and installation work and annually constructs several thousand kilometers of pipeline, but we do not have the right to give permission to create a flowline consisting of 220 people. We must give the main board this right. The advantage to everyone is obvious, without the slightest doubt. It is time to change over from the experiment to the usual, normal procedure for drawing up agreements concerning a unified order.

EKO: Who grants the right to continue the experiment?

G. I. Shmal: The ministry should be given the right to conduct experiments. It is hardly practical to apply to the government for permission each time. The ministry has immense resources and rights to dispose of them, but it does not have the right to select the best uses for these resources by way of an experiment. It is necessary to grant this right. Coordination with various levels of government requires a great deal of time.

Yu. R. Anpilov: In the existing provisions there is no clear-cut determination of the policy for economic experimentation. The USSR State Committee for Labor and Social Problems and the AUCCTU in August 1984 approved the temporary methods for organizing and conducting the economic experiment in the area of labor, but this does not provide anything new, in my opinion, except for systematization of the problem. The ministries, organizations and USSR State Committee for Labor and Social Problems have actually been granted the same rights which they had previously. Nothing can be done with the isolated rights the ministry had previously to grant individual increments. Therefore such a crucial issue remains unresolved. We think that it is time to expand the rights of the ministries and give them the opportunity, taking specific features into account, to conduct experiments within the framework of the established wage fund, possibly with the establishment of specially allotted sums.

Before expanding the experiment it is necessary to improve the entire system. The new economic mechanism must be introduced comprehensively: planning and evaluation of activity, wages, the system of interrelations among partners, and the responsibility of the parties. Unfortunately, we have not done all of this and therefore we encounter shortcomings and trouble spots.

I. I. Mazur: At the beginning of the experiment we agreed to establish the "price" of the kilometer of route--somewhere around 3,500 rubles with deviations depending on the difficulty of the route--and we agreed not to change this throughout the entire five-year plan. But soon we saw that not everybody liked this when "large" earnings were formed and they gradually began to "cut" them. And now they say: "You have collected too many wages, boys." But, after all, the agreement is dearer than money....

I. G. Shaykhutdinov: In order to continue the experiment it is necessary to improve the plan for labor. While previously the proportion of wages in each ruble of construction and installation work amounted to 5.3 kopecks, now the trust has established 3.6 kopecks. Therefore our unified order has not been covered, for otherwise there would have been an overexpenditure of the wage fund. And in these rates one loses the prospects which the experiment initially promised.

EKO: You have mentioned some very serious difficulties. And it is not clear how we will overcome them. Perhaps because of these the experiment will have to be called off?

I. G. Shaykhutdinov: No, now things are going fairly well on the whole. I am in favor of the KTP.

B. I. Cheglakov: Although the Minneftegazstroy is basically operating well, extensive dissemination of the KTP is possible only with the elimination of the shortcomings that exist.

A. P. Vesilyev: The experiment with the KTP aroused forces with which we do not always know how to cope. The workers have evaluated the possibility of organization and payment for labor in the new way, the managers have seen and become convinced of the high results of the KTP, and the ministry understands that successful fulfillment of the program for introduction of main pipelines is largely provided by comprehensive flowlines. This means that it is necessary to develop the experiment, deepen its content, extend it to new construction sites and to do this in a deliberate way--without rushing forward but also without standing still. Here we need assistance from the USSR Gosplan and USSR Srobybank and understanding from the client ministries.

EKO: Restraint in the evaluations of the prospects for expanding the experiment is understandable. You can see well the problems that have arisen. But we are bothered by the fate of such innovations in more than just your branch. What you have done is of general and even universal significance. The collective form of organization and incentives for labor with an orientation toward the final result, which the comprehensive technological flowline is, should be extended to other branches. Probably not everyone knows this, but the Novosibirsk experiment in applying the collective contract originated at least partially because of the existence of experience in applying the KTP. This also became clear in Novosibirsk: It is not enough to organize the collective contract in the section, shop or flowline. The wave of change will sooner or later reach higher organizational levels--the enterprise or the association. The experiment with the KTP is especially good because it was applied to mobile production, and under the conditions of scientific and technical progress any production necessarily becomes mobile. This is why the future of the country's economy depends in no small way on the results of yours and other branches, and to a greater degree--on the methods of management and organization of production. Any progress is simply necessary if we are proceeding toward intensification of the economy.

Conclusion

A. V. Aganbegyan: Calculations show that under the 12th Five-Year Plan we shall have to increase the growth rates of the effectiveness of production even more. The usual methods will not produce the necessary acceleration. The large-scale experiment in five branches which has been conducted since the beginning of 1984 produced certain positive results: the fulfillment of delivery plans improved, the growth rates of labor productivity accelerated somewhat, and the production cost decreased a little more than usual. But this improvement was, say, from 4 to 4.5 percent with respect to labor productivity, that is, it was not radical and not basic. Moreover one must take into account the privileged conditions with respect to supply, the provision of transportation and the granting of credit to enterprises that were conducting the experiment. In my opinion, the reason why the positive changes here were less than expected are as follows: this experiment was not sufficiently extended to the workers and did not properly interest them in the results of their labor.

As distinct from the Shchekino method, the experiment in the Minneftegazstroy produced, as it were, an explosive effect and led to a radical change in effectiveness. So, in my opinion, the organization of comprehensive technological flowlines is an outstanding achievement which is worthy of in-depth study and extensive dissemination.

Such changes break down the existing system and place completely new requirements on it. The collective contract forces us to restructure planning, material support and the organizational structures and also to solve social problems at all levels of management of the national economy.

It is necessary to give the proper evaluation to what has been done and at the same time not to smooth out the critical problems but to continue to improve and think about the matter. It is good that we now have an orientation toward the final goal and there is a desire to construct projects that are "completely ready." But it is also important to proceed further: having the experience of the KIP in the construction of pipelines, it must be transferred to the associated workers. It will be necessary to extend cost-accounting relations both along the horizontal and along the vertical. With time it would also be expedient to change trusts over to the collective contract and then, perhaps, even main boards, thus giving the workers of the management units greater interest in the final results.

On the whole the experiment in the USSR Minneftegazstroy was successful. And the question now is not simply about the experiment, but about making it the normal system of operation for all subdivisions of the ministry.

If one looks at the work experience of subdivisions of the Minneftegazstroy from a general point of view one can see that it includes certain fundamental provisions for an efficient system of management which should be extensively extended to other branches of the national economy. We are speaking about the combination of comprehensiveness and specialization, the directedness of the organizations toward the achievement of final results, and the collective interest in the utilization of the contract and the principle of incentives according to the resulting (residual) wage fund. It seems to me that it is necessary to utilize the results of experiments that have been conducted more extensively, particularly to link the conditions of the large-scale experiment to the collective contract. Then we will be able to decisively increase the effectiveness of our production and accelerate the growth of labor productivity.

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PROGRESS ON TYUMEN PETROLEUM EXTRACTION REPORTED

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[Article by A. N. Filimonov, Hero of Socialist Labor, manager of the Yuganskneftespetsstroy Trust: "Lessons of the Tyumen North"]

[Text] For 20 years now petroleum workers have been intensively assimilating the natural riches of Tyumen Oblast. Significant successes have been achieved and the extraction of petroleum has increased for a long period of time. Obviously, the specialists of the main board have become accustomed to winning prizes and the decline was unexpected for many of them.

For several years now Glavtyumenneftegaz has not fulfilled its planning assignments for the extraction of petroleum. During this time several significant articles have appeared in the central and oblast press, making attempts to discover the reasons for this phenomenon. The authors of the articles devote most of their attention to the unpreparedness of the Tyumen petroleum workers for mechanized extraction and they also note several other large shortcomings in our work. True, during the time of the assimilation of the petroleum area many mistakes were made. Many were corrected immediately, during the course of work, and some of them were exacerbated and were not corrected for years, 5-year periods or even longer periods. The mistakes varied in scale. Those made by local workers did not cause much harm and they were the easiest to rectify. It was another matter when the mistakes and blunders were made at the level of the staff of the branch or the main board. These were discussed in a speech by M. S. Gorbachev at the meeting of the party and economic aktiv in Tyumen. He noted that in recent years the innovative traditions of the pioneers of the Tyumen petroleum field had grown dim. The general secretary of the CPSU Central Committee emphasized that the lessons of the petroleum workers must be firmly mastered so that the mistakes would not be repeated.

I have been working in the Tyumen oilfields, as they say, from Point Zero, and was a living witness to the development of the petroleum region--and also a witness to many of the blunders that were made.

Where Are the Petroleum Workers To Live?

Let us begin with the time the petroleum workers arrived in the northern part of the oblast. March 1964. By that time the geological prospectors had discovered 14 petroleum deposits in the Ob' area, including the Ust-Balykskoya, which was the most promising at that time. Within a year they had created the Tyumenneftegaz Association, five local drilling offices and three NGDU's (petroleum and gas extraction administrations). Our NGDU, Surgutneft, which was to engage in the development of the Ust-Balykskoya, Zapadno-Surgutskoye and Solkinskoye deposits, "settled" in the city of Surgut. This was the first mistake. It was necessary to immediately create an administration in Nefteyugansk where the only oilfield and drilling office that existed at first were located. The Yuganskneft Administration was not created until 2 years later. Up to this point neither the Ust-Balykskoya field nor the workers' settlement were properly developed because the managers of the NGDU sent all the material resources to Surgut. Although even at that time Surgut was a city with a large population, Nefteyugansk had only a name. And the Ust-Balykskoya oilfield remained, essentially, a barren spot--taiga and swampland.

During 9 months of 1964 the collective of drillers of Ust-Balyk alone increased to 570 people. The majority of them came with their families. During the navigation period of 1964 we received 115 boxcars and we ourselves cut down almost 400 trees. Only through these measures could we retain the collective since we only received 1,050 square meters of "capital" housing that year (two-story wooden buildings). By the beginning of 1965 there were already about 2,000 workers in Nefteyugansk (not counting workers from the petroleum prospecting expedition, of whom there were more than a thousand).

Now it is difficult to believe it--we lived in foxholes like at the front. It was necessary to have the most elementary infrastructure, without which human life would be impossible. The situation of the new settlers was exacerbated by the severe climate, the lack of roads and the blood-sucking flies which were unbearable during the summer. Many of them could not stand it and went back, spreading throughout the land truths and falsehoods about the Tyumen North in order somehow to justify their flight. There remained only the "hardy" and the optimists, who thought approximately like this: If not us, then who? To illustrate the magnitude of the turnover I shall give these figures. During 14 years the Nefteyugansk Administration for Drilling Work hired 6,000 people and released 5,000. To be sure, not all of these 5,000 returned to the "great land." I think that half of them found jobs in their specialty not far away, at other enterprises which had grown up in Tyumen Oblast like mushrooms after a rain.

Science was enlisted to help us solve our problems. We immediately raised before the researchers and designers the question of developing cross-country technical equipment. Although we understood that the creation of this kind of equipment which could cross swampland would not completely solve the problem, and that it was necessary to construct reliable paved roads. But even today on the books of the Yuganskneftegaz Production Association there are more than a thousand "logging road vehicles," and we have only 350 kilometers of paved road. Yet 20 years have passed since the region began to be assimilated!

At the end of the 1960's and especially at the beginning of the 1970's they debated the question: where should the petroleum workers and their associates live? In the four cities that had become clearly marked by that time? Nizhnevartovsk, Surgut, Nefteyugansk and Uray? Or should they construct workers' settlements of the urban type in the centers of the new deposits that had been discovered.

This problem was especially critical for us in the region of Nefteyugansk. At a distance of 60-80 kilometers from the city they discovered the Pravdinskaya, Mamontovskaya and adjacent deposits. It was decided: to live with our families in Nefteyugansk and Surgut and fly to work (why fly?—because there were no roads) at these deposits. We arrived at this solution from good intentions. In spite of everything, life had been arranged in the city and why transport the family to the back woods? Life forced us to depart from the decision we had made. Even the Pravdinskoye deposit which was average for us at the height of its development required that 7,000-8,000 people be working there at the same time. The settlements near the deposit—Poykovskiy and Mamontovo—acquired the status of "watch" villages. This meant that it was prohibited to bring families there. But families were already living there! In order to force them to leave the settlements they closed the schools and kindergartens. But the deposits could not do without a permanent contingent of 2,000-3,000 people (transportation workers, dining room workers, consumer service workers and so forth). Therefore they left a school with classes up to the third grade. And the 10- and 11-year-old fourth-graders were sent to a boarding school in Nefteyugansk. Now these misfortunes—they cannot be called anything else—have come to an end. It is impossible to remember those times without a pain in your heart. It reached a point where when a helicopter flew in with the "bosses," the men hid.... They were forced to remove the incompletely constructed administrative buildings, such, for example, as in Mamontovo. We saw that the solution that "next to the oil fields there should be nothing but a watch village and no workers' settlements of an urban type!" was incorrect. They did not want to listen to us at the higher levels.

In order to find out the opinion of the workers themselves, who had waited for days (sometimes because of the bad weather, sometimes because of a shortage of helicopters) to be sent to a watch or from a watch, we printed up 2,000 questionnaires and distributed them in Poykovskiy and Mamontovo. One of the main questions on the questionnaire: Would you prefer to fly to the watches or to live with your families in a workers' settlement of an urban type so that you could go home every day? The unauthorized questionnaire caused the dissatisfaction of our immediate superiors. They did not allow us to collect the questionnaires. We were only able to analyze 40 copies. Nonetheless, on the basis of this analysis and on the basis of our personal observations one can draw the conclusion: workers and engineering and technical personnel wish to live with their families in the places where they work.

At first, when deposits were discovered mainly in the floodlands of the Ob', even though it was difficult the petroleum workers could still fly to the watch from the base cities. The distance was up to 60 kilometers and the flight was 15-20 minutes. But even in the Kholmogorsk deposit initially they wanted to work out of the base city of Surgut, which was located 250

kilometers away. Four years ago next to the Kholmogorsk deposit they began to build the city of Noyabrsk anyway. But the deposit had been discovered 15 years before that. A good deal of time had been lost. This could not but be reflected in the production indicators of the Kholmogorsk workers.

It is necessary to provide the deposits with an infrastructure in the first stage of their assimilation. This position must also be adopted by the planning agencies and should force them to promptly take a different look at the way they solve problems of assimilating the petroleum region. But up to this point they judge the state of affairs in the oil fields in terms of the volumes of drilling and extraction of petroleum. As long as these volumes are increasing normally, this means that everything is in order. And yet each year they fail to fully assimilate the funds allotted by the state for building up the Western Siberian oil fields. Only the funds allotted for industrial construction are assimilated. The plans for the startup of housing, facilities for social, cultural and domestic life, education and public health are always going unfulfilled. Thus for 12 years the plan for construction of housing in Nefteyugansk was fulfilled only twice (in 1967 and 1970).

It is curious to compare these figures: in 1979 in the four aforementioned cities of the Tyumen North they put into operation a total of 250,000 square meters of housing, and in Naberezhnyye Chelny (now Brezhnev) alone for KamAZ they introduced 425,000 square meters! And this was after it was already known that the effectiveness of capital investments in petroleum and gas extraction in Western Siberia is several times higher than on the BAM, VAZ, KamAZ and Atomash. How can we keep from severely reproaching the planning agencies here?

Because of the absence of housing we were forced to resort to the watch-expedition method and hire specialists and workers who live in other oblasts and distant cities. Now more than 4,000 people from 14 cities of the country fly to work in Nefteyugansk alone. And who knows about the region as a whole? Perhaps somebody is glad about the solution to the problem that has been found, but it is not us. For there can be no question of stabilizing "flying collectives" and it is impossible to conduct social work among them. Perhaps it is stretching things even to call them collectives.

The reorientation and the policy for settlement came too late, and the decision to construct cities and villages at the deposits was made only 4-5 years ago. Now it is difficult to calculate the economic losses from this blunder, not to mention the immeasurable moral harm. So many families have been broken up! And this mistake, in my opinion, is one of the major ones in the assimilation of the Tyumen North. The weakness of the rear brought about both the instability of the collectives and the instability of the production indicators. It is obvious that the prestige of our profession declined because of this "gypsy," nomadic way of life. Previously the competition in the petroleum VUZes and tekhnikums was fairly high, but now in the groups of drilling workers they take only those who have failed examinations in other VUZes and in other departments. The level of the young specialists who come to us declines correspondingly. It is an endless chain of interconnected problems. But one can already truly say: you reap what you sow.

A Game of Specialization

The confusion and complications related to the poorly thought out and inconsistently implemented specialization also caused a great deal of harm. Many people write about its advantages; this has become fashionable. And when the Tyumen North was assimilated a course was taken toward specialization. To this end even our Tekhsnabneft was renamed BPTOIKO (basis for production and technical support and batching equipment). The salaries of the managers were increased 1.5-fold and the staffs were expanded. It was thought that the BPTOIKO would fill the orders of the enterprises (with the delivery of cargo to the project). But practically nothing came of this. They did not manage to arrange regular delivery of cargoes because in the region there were no reliable roads that could be used year-round and there was no material responsibility for the failure to make the deliveries. This kind of pseudospecialization led to large losses of working time. Cargo waited around in vain at the facilities for entire days. And if the pipes and loose materials (cement, salt, chemical reagents) were somehow shipped to the site in keeping with the orders, the recipient himself had to unload them.

In our association there appeared 10 specialized administrations for technological transportation (UTT). In addition to being technological, the transportation was essentially depersonalized. Today it would be used for the drilling workers, tomorrow for the extraction workers and derrick installers, and so forth. There appeared great opportunities for write-ups, especially among the drivers who were paid by the hour. And if you did not sign the write-up they would not work for you. The driver would say: "But I had a breakdown!" Best of all would be for the transportation to be distributed and placed under the jurisdiction of the people who use it: the drillers, the extraction workers and the builders should all have their own transportation. Then many of today's problems and trouble spots would disappear. But now the deputy general director of the association for general problems is not directly responsible for the affairs of the drilling workers or their associates, but he has the right to take the transportation away from them. Where is the logic in this?

At the beginning of the 1970's specialization was carried to the point where the drillers were kept separate or, more precisely, first the derrick installers were selected out and then the workers for plugging back, and the repair and rolling shops were covered, creating TsBPO BO (central basis for production support of drilling equipment). There were even more misunderstandings. The chief of the administration for drilling work (UBR) never hung up the telephone all day long because he was coordinating issues with his associates. But telephone conversations could not help here. And the administrations for drilling work frequently stood idle because of the lack of coordination of their actions with the derrick installers and other associates.

Or take the turbine shop. When it was included in the UBR it cost only 420,000 rubles a year. After the changeover of this shop to the aegis of the TsBPO BO we began to pay 5 times as much for the services of this shop. Because the TsBPO BO is interested only in money and they disdainfully refused

to do any repair work that cost merely kopecks. Even a minor repair job on a pipeline began to be called capital repair—costing 10 times as much! But one cannot live long this way. And in order to get around the specialization that was too narrow all the UER's began to create their own microrepair shops with 5-8 lathes.

We have become convinced that specialization is a benefit only with good organization of labor, when an interruption of the activities of the drilling brigades is regarded as an emergency, and it should involve complete material responsibility. But this was not the case. There was neither good labor organization nor material responsibility. Even though the annual contractual agreements which stipulated this responsibility were scrupulously drawn up. But in my memory there is only one case of fines in the amount of 5,000 rubles being imposed on the administration for technological transportation for interrupting the transportation of the drilling brigade from one deposit to another. The fine elicited a violent reaction and even became the subject of a special investigation.

Not having received the expected benefits from narrow specialization, we decided to create superUER's—consolidated administrations equipped with the corresponding base in which the drillers, as before, would again be combined with the derrick installers, plugging back workers and transportation workers. Then we would actually have restored the integrity of the technology of drilling and assimilating the wells. We (that is, the specialists of Nefteyugansk UER-1, where I worked for 14 years) suggested this idea at the very beginning of the campaign for specialization. But at that time the main board paid no attention to our reports, even though we accompanied them by calculations and proved that the annual savings on the wage fund for engineering and technical personnel with the creation of superenterprises would reach 2 million rubles a year and the production cost of each meter of drilling work would decrease by 5 percent. Our calculations were verified by a commission of authorized specialists. They found a mistake of 3 kopecks (the production cost of 1 meter of drilling, according to the calculations of the commission, would decrease not by 5 rubles, 73 kopecks, but by 5 rubles, 76 kopecks. Nonetheless, after the verification nothing changed. More than 10 years have passed since that time.

But now in all of the old petroleum regions (Nizhnevartovsk, Surgut, Nefteyugansk) it is already very difficult to return to the idea of the superUER's. The game of specialization has led to unnecessary complications. For example, in Nefteyugansk for six administrations for drilling work today there are three derrick installation administrations, two plugging offices, one TsBPO BO, and three specialized construction administrations. How was all this divided up? Apparently it is necessary to take a differentiated approach and create superenterprises for the various regions where all of the contractors are working for one client. And obviously they should be created immediately at new deposits where we will have to go in the near future.

At the end of 1984 the branches adopted another decision which in its own way reflected their disenchantment with the possibilities of specialization. In our opinion, today's fluctuations between specialized and comprehensive enterprises are beginning to remind us of switching from one extreme to

another. We decided to make it incumbent on the drilling workers to produce "clusters" of wells that were completely ready. This means that the drilling workers must not only drill the "cluster" of wells and make them ready to produce oil, but also to provide for all the fittings and construct all the other facilities for petroleum extraction. This was previously handled by the Neftestroy Trust, which had the appropriate equipment and specialists. Neftestroy was not locally under the jurisdiction of our association and answered directly to Zapsibneftestroy in Tyumen. They did not carry out their assignments well. Because of this, in the northern part of Tyumen Oblast alone we waited for a long time for the fittings for dozens of "clusters" that have been drilled.

And now in the branch we have found a solution to the problem. To put it simply, they wanted to push off some of the building work onto drilling workers who "are able to do everything" and they have managed to do this. Was this decision necessary? In our opinion, it was not. It is necessary to place the Neftestroy Trust under the jurisdiction of the local production associations so that the main concern for building will be manifested by the local leadership and not a "distant cousin."

The problems of organizing the labor and life of the Tyumen petroleum workers requires an immediate solution. Further successes in the assimilation and working of the deposits depend on this.

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NEED FOR ECONOMIZING ON METAL STRESSED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 88-94

[Article by I. A. Mikhaylova-Stanyuta, candidate of economic sciences, Institute of Economics of the BSSR Academy of Sciences (Minsk): "Savings and Normatives"]

[Text] The problem of economizing on metal is especially crucial for the Belorussian SSR, where more than 90 percent of the republic's needs are satisfied with imports. An analysis shows that the proportional design metal-intensiveness of the most important kinds of machines and equipment produced in the republic is constantly decreasing. Thus with the changeover to the output of D-240 engines, the Minsk Motor Plant reduced the expenditure of metal per unit of capacity by almost 2 kilograms as compared to the previous model. In its day the D-500 was lighter than its predecessor, the D-48, by 200 kilograms. The proportional mass of the MTZ-80/82 tractors decreased to 41-44 kilograms per horsepower as compared to 50.2-53.5 kilograms for the MTZ-50/52 tractor. The weight of the large trucks produced in Minsk decrease by more than 10 kilograms each year. Machine tools, electric engines, motorcycles and many other kinds of machine-building products have become lighter. The successes are unquestionable.

Each enterprise fulfills an autonomous plan for saving on materials, and the best ones fulfill a plan for reducing production costs as a result of savings resulting from the introduction of technical and technological innovations. Many productions have created groups for financial cost analysis which engage in a search for reserves for economizing; a movement for economizing is under way, and reviews and competitions are being conducted.

But when one looks into the situation one can see that the successes could and should be much more significant. Our machine tools, machines, mechanisms and instruments are still heavy, the efficiency factor of materials is not high, and the influence of the economy of materials on the production cost is weak.

According to the calculations of specialists, the metal-intensiveness of tractors could be reduced by another 10-12 percent by introducing progressive materials (low-alloy steels, light alloys, polymers and so forth). The potato diggers produced by the Lida agricultural machine-building plant and the mixed

feed combines of Gomselmash are heavy. The republic has only a couple of machine-building enterprises that have not been afraid to admit that their products have high metal-intensiveness. These include refrigerators (they are an average of 10 kilograms heavier than the best models, although here, apparently, the blame lies not so much with the plant as with the suppliers. The plant has the highest coefficient of the utilization of rolled ferrous metals in the Soyuzelektrobytmash Association), individual models of machine tools, motorcycles, bicycles and other items. But the majority of producers can find similar products which are just as good as theirs for which the corresponding ministry establishes standards.

Let us turn to the coefficient of utilization. It is increasing slowly, and sometimes it is even decreasing. Thus at the Minsk Piston Plant in 1976 and in 1983 the coefficient of utilization of rolled ferrous metals remained at the level of 0.61, and at the Minsk Tractor Plant it even decreased during this time from 0.72 to 0.67. There was a similar situation at many other enterprises. The planning assignments with respect to this indicator are not always fulfilled by all of them.

For machine-building enterprises of many union ministries that are located on the territory of the republic in 1985 they even plan the reduction of the coefficient of the utilization of ferrous metals. These include enterprises of the Ministry of the Electrical Equipment Industry, the Ministry of Chemical Machine Building, the Ministry of the Machine Tool and Tool-Building Industry, the Ministry of Light and the Food Industry and the Ministry of Instrument Making, Automation Equipment and Control Systems. This can be explained, on the one hand, by the fact that the products they produce are becoming more complicated. But, in our opinion, technical progress, and above all in the area of technology, should compensate for this reduction. Otherwise the effect of technical progress is incomplete. But technology is changing slowly, essentially remaining stable, since its improvement requires changing equipment and instruments, additional capital investments, and so forth. Here, as they say, you cannot get by without losing some blood. And although this is true, the successes here are quite modest. Moreover, technologists are not being required to create alternative variants or to compare them with the best analogues. When our institute had to develop a comprehensive program for scientific and technical progress in the republic, great difficulties arose with the prediction of the technologies, for which enterprises and entire branches turned out to be unprepared. Even the method of functional cost analysis, as investigation showed, is applied at the plants exclusively for improvement of designs of items as though the reserves of technology were not very significant or prohibitive. Obviously research in this area should be stepped up.

Now about the planned assignments for reducing expenditure norms. Machine builders receive these assignments each year. This indirectly shows the poor quality of the norms since it is practically impossible to regularly reduce substantiated norms. The assignments, as a rule, are the same from year to year. The Minsk Machine Tool-Building Production Association imeni Oktyabrskaya Revolyutsiya, for example, received the following assignments for reducing expenditure norms: in 1980--4.2 percent, 1981--4.8 percent, and 1982--4.4 percent. The Minsk Plant for Automated Lines: 4.2, 4.8 and 4.8

percent, and so forth. And as we know, this kind of uniformity is difficult to achieve in practice. At the time of introduction of a technological innovation the savings can surpass the traditional ones by 4 percent, while in the next year there can be none at all. The production workers "sustain" the savings by showing in the given year only part of them so that the remainder can be submitted subsequently and they will not be "beaten" for underfulfillment of the assignments. This practice has taught them even to conceal the reserve of savings in a new product since otherwise it will immediately be included in the plan for economizing.

And what is the situation with respect to the reduction of the production cost? In practice they have returned to monitoring this indicator and a good deal of attention is now being devoted to it. But the link between the plan for new technical equipment and organizational and technical measures is still not as close as it should be.

In this connection one recalls an incident with one subject under a contractual agreement. The scientific research institute took on a plant's assignment for searching out reserves for reducing production costs, found them, calculated them and submitted them to the management. The subject was closed and the money was paid. The people's control did not disclose the results. It is not known who was to blame: the institute for doing poor calculations or the plant for not mobilizing the reserves.

A couple of words about the precision of such calculations. The main source for economizing on materials is the plan for new technical equipment and organizational and technical measures (or an autonomous plan for savings on materials that is based on these). Savings on metal here, as a rule, is calculated in tons. Then the tons are added up, multiplied by the average cost of the metal and subtracted from the production cost. But not all measures in the plan for new technical equipment are reflected in the production cost. Thus a reduction of the design weight which is not accompanied by a proportional reduction of wastes does not influence the production costs since the wastes are taken into account in its composition. Savings on metals can be accompanied by their replacement with plastics which are sometimes more expensive, which again means that there will be no reduction of the production cost. This means that such calculations must be more precise, reflecting in the plans and reports on new technical equipment not only the tons and the overall reduction of the production cost, but also the elements of expenditures: raw and processed materials, batching items, fuel and energy.

A couple of words about initiative. Many machine-building enterprises of the country have supported initiatives for expanding production without increasing the consumption of metal and fuel. And one can say that the commitments are being fulfilled. This is with a stipulation, since the lion's share falls to savings resulting from changes in the assortment (structural). The consumption of metal is planned according to base norms without taking into account changes in the assortment of products that are produced, and when evaluating the results these savings are credited to the aktiv. And if the machine tool builders have reduced the program for heavy rolling mills and increase the program for relatively light cutting mills, they have achieved

the savings without any special effort. Judge for yourselves: the Minsk Machine Tool-Building Plant imeni S. M. Kirov supported the initiative with an expansion of production of 34 percent during the five-year plan. A difficult commitment. In 1980 the expenditure of rolled ferrous metals here decreased by 6.8 percent, in 1981--4.6 percent, and in 1982--another 2.2 percent, and the reductions were almost as much in 1983 and 1984, but the coefficient of utilization remained at the level of 0.65. This means that the wastes were not reduced, and the savings were achieved as a result of something else, mainly changes in the assortment. These conclusions are based not only on an analysis of the work of Belorussian Machine-Building Plants, but also the work of leading enterprises of other republics.

What has been said makes it possible to assert that the practice of economizing on metal is not irreproachable. We need radical changes in the search for reserves for economy. We should look for them not in established, well-arranged production, but in control and management of the level of labor-intensiveness in the stage of preparation of production. People can point out that at many enterprises the analysis and evaluation of the utilization of resources are conducted when defending the designs for new technical equipment and the items are certified for material-intensiveness. This is indeed true. But, in the first place, certification pertains only to the design material-intensiveness. In the second place, the certifications here are stretched to such an extent that there is some doubt about their expediency. And the numerous replacements because of the lack of the proper profiles, defective work and other kinds of losses in production sometimes "eat up" that small reserve that is included in the design. Thus just at the Minsk Automotive Plant during a year they draw up about 400 documents for replacement. The losses for replacements nullify or significantly reduce the amounts of savings provided by the design and technological services. The reasons for their appearance vary. The republic satisfies half of its need for rolled metal with repeated and measured rolling. Only 43 percent of the overall volume of rolled metal is progressive sheet metal. Bringing this proportion up to 65-70 percent will make it possible to reduce the republic's need for metal by 20 percent. But the amount of replacements depends not only on external factors; the amounts are also determined by the quality of the work of the supply and sales organizations and enterprises that have not managed to order a sufficient quantity of the necessary metal on time or deliberately refuse to accept lightweight uniform metal.

Control in the stage of preparation of production and in the process of meeting the requirements of normative technical documentation must be transformed from something formal into something that is effective, without exaggeration or making allowances. In this stage there is some point in carefully analyzing the level of material-intensiveness and the reserve for utilizing this. Material-intensiveness in physical and value terms can be expediently set for the designers and technological services in terms of three indicators: the design weight, the efficiency factor of materials and the limit on material expenditures per unit of output for the various elements.

As the normative or base model one should use the one that was developed taking into account the achievements of science and technology from economic material on progressive technology with the necessary operational

characteristics. It makes sense to link the evaluation of the technology (among other indicators) with the normative level of wastes and the efficiency factor of the materials when they are processed. Hence the need to compare the alternative variants not only of designs, but also of technologies.

The norm based on the progressive, competitive model is the potentially possible, the minimum. It can be achieved only taking into account advanced experience (domestic and foreign), scientific and technical progress and production organization.

The normative for the expenditure of materials should be established not only in physical indicators, but also in value indicators, setting a limit on expenditures per unit of output. The limit and the normatives should be included in the technical documentation for the planning and production of new machines and equipment.

It would make sense to reinforce the requirements for drawing up the potentially possible norms for the expenditure of materials with the system of standards. We need progressive standards: and in this respect the so-called advanced standards and the variant of them, graduated standards, are of interest. They place on the products the highest requirements that can be realized in the future.

Comparison of the net weight of the created model, the efficiency factors of the utilization of the material and the limit of material expenditures with the normative amounts will show reserves for reducing material-intensiveness. If they are not great or are completely lacking, the item can be certified for production; but if they are significant, it should be sent back for more work. The absence of reserves is evaluated as a positive phenomenon, and the existence of them as an atypical, exceptional phenomenon which is conditioned by objective difficulties (a shortage of various kinds of materials or the necessary equipment, or delays in the changeover to new technology).

If the reserves for economizing are concealed during the course of the preparation of the item for output, searching for them in the process of production can turn out to be superfluous. It amounts to eliminating mistakes in the preparation of production, of which there are not very many with strict certification for material-intensiveness. Creative preparation of production reduces random reserves to a minimum.

Such a practice makes it unnecessary to have annual assignments for reducing the expenditure of materials, the coefficients of their utilization and certain other indicators whose weak points are well-known. Production will be rid of constant and not very effective searches for reserves for economizing, which create only the appearance of serious work.

For the development of planning and design documentation which leads to the potentially possible norms it is expedient to award bonuses to engineering and technical personnel, and they should be awarded to the management for the achievement of progressive norms in practice. We should practice using the ruble as punishment (in the variable part of the earnings) for omissions in work which impede reaching progressive normatives.

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LIMITS ON ELECTRIC ENERGY REPORTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 95-96

[Article by F. S. Vesnin, chief of the technical division of the Kurgan Production Association of the Dairy Industry: "On the Electricity Limit"]

[Text] I recall a story about limits on electric energy: initially (in the 1970's) they were introduced, then abolished, then introduced again, and initially for the consumption of electricity the limits were placed only on large enterprises that have power transformers with large capacities.

In our association in those years there were energy engineers, but many other associations did not have them, and during the period when the limits were in effect they temporarily hired "electrical engineers," who would "sit at the limit," that is, would make sure that the limit was reached, divide the electric energy up among several large enterprises, redistribute the fittings, make adjustments and so forth. In general there was too much paperwork. And the managers of the associations breathed a sigh of relief when they fired the temporary "paper shufflers," when the limits were abolished.

Unfortunately, once something is tried and tested it persistently beats a path into reality. The existing limits on electricity consumption has a tendency not toward reduction and elimination of their existence but, on the contrary, toward the development and "improvement." They are already being extended to small and extremely small production and nonproduction units, for example, local oil refineries, garages, bases, and so forth, regardless of the capacities of the installed transformers. It is becoming more and more difficult for the head energy engineers of the association, and at republic and union conferences they raise the question of increasing the number of workers in these services, creating independent OGE divisions, and in some places these divisions have already been created. The staffs of the state energy consumption administrations are increasing correspondingly. And how could it be any other way? After all, the flow of paperwork cannot be dammed up.

Beginning in 1983 they no longer trusted the head energy engineers of the association to adjust the limits within the quarter for the various enterprises. From then on this had to be done by the corresponding services

of the enterprises themselves--those in charge of the limit. This means that there too certain specialists had to "sit at the limit." And how many of them were there in the entire country? How many people during their best hours were not at a machine tool or the controls of some other machine, but were sitting at the telephone and beginning to get on their own and others' nerves instead of creating material values? Did anybody ever think about how much it cost to keep them there?

This is not a measure for economizing on electric energy and it is not a way of making sure that it is used efficiently, which have long been taken care of in and of themselves. This is accounting for accounting, paper for paper. Can we really not believe the electric meters that are installed in both ends of the feeder? We also know of and use electric meters with remote transmission of readings and direct connection to computers, so why not use technical means for accounting? They could even be doubled, achieving greater reliability and freedom from error.

The noble idea of any kind of limits is to economize on material resources and, in the final analysis, to economize on general labor expenditures. But what happens in reality? In many branches, including ours, the proportion of manual labor is still great, and we must shift it to the shoulders of machines. It is necessary to introduce transporters and electric loaders, electric and pneumatic instruments, automatic manipulators and computers, and all this requires increasing the expenditure of electric energy. But what is the limit? It is necessary to pay tenfold if one exceeds it. Who needs these fines? I think that in many cases the limits should be replaced by incentives for economizing on energy, only the system of its incentives should be more flexible and differentiated than it is now.

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PLANT CERTIFICATION TO BE IMPROVED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 97-98

[Article by B. G. Rokhlenko, deputy chief of the OTK of the repair and mechanics plant of KamAZ (Brezhnev): "Increasing the Effectiveness of Plant Certification"]

[Text] Plant certification of products is a natural continuation of state certification and should contribute to improving its quality. But the existing system has certain inherent shortcomings. First, we have not developed sufficiently clear-cut criteria for determining the list of items (assembly units) which must be certified within the enterprise. Second, the very process of certification is fairly labor-intensive and takes a good deal of time both from the rank-and-file workers and from the highly skilled supervisory personnel.

A number of enterprises certify products from a specially established list while others certify the entire list of parts that are produced. The procedure of certification itself is cumbersome. The certification commissions include all (or many) head specialists of the enterprises and the documents submitted to the commissions contain up to a dozen and a half signatures of specialists of a lower rank. Even with all this there is no guarantee that during the process of certification the most important aspects of the quality of the products and parts will be considered.

Third, there is a disparity between the periodicity of the certification and the periodicity of the payment of bonuses. Thus in the majority of enterprises the certification of a part (assembly unit) is done for a year or two, while the bonuses for quality are granted each month or each quarter.

It is possible to use the following device to increase the influence of certification on improvement of product quality. We arrange all parts in the order of decreasing losses from defective work (by this we mean all expenditures associated with poor quality: losses from defective work themselves, expenditures on eliminating defects and satisfying complaints) and we total up the losses until we reach 80 percent of the overall losses (this method is called the "Pareto method"--named after the Italian economist who first used it). Those parts that have been included in the 80 percent we

conventionally consider to be uncertified. Since losses from defective work are calculated each month, the list of uncertified parts must also be corrected each month. Then we will establish a direct connection between the level of certified parts and units and the level of product quality. But now we have all too many cases where the part has undergone plant certification but the percentage of defective work in its production increases. And only after a year or two with repeated certification is this lack of correspondence eliminated.

The proposed method of plant certification makes it possible for the production workers to concentrate attention on a limited list of parts.

Let us note that when it takes less than a month to begin the production of parts it is expedient to arrange the entire system of bonuses for high quality so that it is coordinated with the time periods for the startup of production.

Let us consider a case in which normatives for defective work are utilized in production. Two approaches are possible here: 1) when it is necessary to provide incentives for reducing the norms, and 2) when it is necessary to actually bring the value of the indicator of defective work up to the normative. With the first approach one includes the entire list of parts which have defective work, and constructs an St^{80} series. With the second approach from the St^{80} series one excludes all parts for which the defective work does not exceed the normative. The list of products from which there is the greatest loss which one reveals this way is the object of concentrated work on the part of the management.

It would be expedient to arrange the incentive system as follows. The scale of bonuses could be linked to the level of certification in individual segments or continuously. The latter is preferable for the dependency should not be linear but the kind whereby when the planned level of quality is approached and certainly when it is exceeded the increase in the bonus appreciably exceeds the increase in the quality level (for each percentage point or portion thereof).

The proposed method of certification makes it possible to eliminate practically all of the document turnover for certification since the list of parts which have defects is issued (or can be issued) with a computer. This eliminates all the fuss with conferences during certification (all issues are considered at the conferences on quality). Additionally, this method relies on economic indicators, which makes it possible to link the level of certification directly to the enterprise's economy.

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MOTIVATION FOR HIGH ECONOMIC RESULTS EXPLAINED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 99-118

[Article by V. P. Moskalenko, doctor of economic sciences, honored economist of the Ukrainian SSR, deputy general director of the Sumy Scientific Production Association imeni M. V. Frunze: "Cost-Accounting Incentives for High Final Results"]

[Text] Within the framework of the long-range future the main means of increasing the effectiveness of public production is extensive introduction of the achievements of scientific and technical progress. But we will not achieve the expected effect from the application of the latest technical equipment and the most progressive technology if we do not create the appropriate organizational and economic conditions for its utilization or if the labor collective of the association (enterprise) knows that the maximum effect from the introduction of technical progress is not altogether advantageous for it.

The creation of a mechanism for motivating participants in production to achieve a high level of return from the production potential is one of the fundamental problems being resolved in economic experiments that are being conducted in all branches of the national economy, including the large-scale experiment, which now encompasses associations and enterprises of various branches of industry. The same goal is pursued by the economic experiment that has been in progress since 1985 in the Sumy Machine-Building Production Association imeni M. V. Frunze. In keeping with the conditions of the experiment, new provisions directed toward strengthening cost accounting are to be introduced into the practice of the association. These are a further development of the large-scale experiment that is being conducted at enterprises and associations of machine-building branches.

Why was the Sumy NPO imeni M. V. Frunze the one to be selected for conducting this experiment.

The past three five-year plans we have been creating and introducing here an intraproduction mechanism to provide incentives for a high level of effectiveness of work. Its essence lies in the application of methods of evaluating, planning and providing incentives for collectives of subdivisions

and workers on the basis of normatives that determine the possible achievements in the main areas of production activity.

As we know, up until recently the most significant shortcoming in the economic mechanism has been the orientation toward planning indicators of production activity from the level that has been achieved and evaluating the effectiveness of the results and constructing the system of economic incentives solely on the basis of the fulfillment of the plan. As a result, there has been a certain contradiction between the increase in the effectiveness of production as a result of maximum utilization of reserves and the existing practice of planning, on the one hand, and criteria for evaluating the results and the system of incentives which is based on these criteria, on the other. In practice this has led to motivating the enterprises to reduce plans, to conceal reserves and to utilize capabilities incompletely.

Since the evaluation of the level of management solely on the basis of the plan itself, with the existing principles of planning, is unobjective, it is necessary to find a method of measurement which would reliably evaluate both the plan itself and the actual results that have been achieved and would contribute to providing incentives for maximum utilization of reserves both during the development and during the fulfillment of the plans.

New Normatives

To this end, in the association the existing system of normatives was augmented with evaluation normatives that are principally new in content and have been given the name normatives of potential possibility (NPV). The normative of potential possibility is the maximum amount of the indicator which can be reached with observance of the adopted (calculated or normative) of its elements, which take into account the leading achievements of scientific and technical progress and organization of production and labor. The NPV's were developed from indicators that reflect the main directions of the activity of the association: technical development of production and the volume of the economic effect obtained from the introduction of organizational and technical measures; the utilization of production capacities; product quality; and also the social development of the collective.

The application of criteria for evaluating the results of production activity on the basis of the NPV provided for greater reliability of the evaluation. This made it possible:

first, to establish a ratio between the possibilities of the collectives of the subdivisions and the adopted assignments of the plans, which created prerequisites for improving the substantiation of the plans;

second, to coordinate the amount of the material incentives with the level of the utilization of existing capacities, which increased the efficiency factor of the system of incentives;

third, when summing up the results of socialist competition, to reveal the true leaders, which improve the results of socialist competition.

On the basis of utilizing these advantages the association created a new intraproduction mechanism for incentives for highly effective work, which became the main content of the comprehensive system for control of the effectiveness of production which was introduced in the association and was approved by the Central Communist Party of the Ukraine, the USSR State Committee for Labor and Social Problems and the Presidium of the AUOCTU, and was suggested for dissemination to other enterprises.

A New Organizational Structure

The structure of management of the association was selected taking into account the peculiarities of enterprises with small series type of production and with a large list of products that are produced. The independent Sumy enterprises that were included in the association (heavy compressor construction, energy and atomic pump construction) were deprived of the rights of a corporate body, reorganized into productions and placed under the jurisdiction of the general directorate. The economic, supply, financial and sales divisions, the accounting and control services, and other divisions were centralized. We organized a unified metallurgical production which provides the basic shops with cast pieces, sheet metal, pipes and forged pieces made out of rolled metal and also ironware. The production in the main shops was organized according to object specialization. These shops are large producers of final products, including operations for metal processing, welding and the assembly of items (machine assembly and boiler-assembly) and are also directly responsible for dispatching the products. The instrument, repair, transportation and other shops for auxiliary and service production were centralized on the scale of the association. The association is directly under the jurisdiction of the central staff of the ministry.

This structure of management made it possible to conduct a unified technical, economic, personnel and social problem, to utilize all of the advantages of specialization, and to control from a unified center the loading of production capacities that were created at all of the formerly independent enterprises.

In July 1985 the production association was transformed into a scientific production association. It included a branch scientific research and design-technical institute for compressor construction. This will significantly strengthen the plant sector of science.

The complex of standards for management introduced at the association was the first in the country. This involves a large amount of important and creative work which is being done on the initiative of the Gosstandart and under the methodological guidance of the All-Union Scientific Research Institute of Standardization. Unfortunately, not enough attention is being devoted to this by the ministries, departments and enterprises. Yet the introduction of a complex of state standards for management along with a progressive economic mechanism, which was discussed above, made it possible to create an organizational mechanism for management in the association. Methodological documentation was created for all the goals, functions and tasks of management and control was organized for the implementation of these documents.

But the internal organizational and economic mechanism existing in the associations was still unable to fully cover all the possibilities since it contradicted the existing provisions at the level of the association as a whole, where traditional methods of planning "from what was achieved," and evaluating and providing incentives for the level of the fulfillment of the plan continued to prevail.

At the same time the experience that was accumulated made it possible and required proceeding further and creating a mechanism for incentives for the effectiveness of work at a high level which also at the high level, at the level of evaluation of the results for the association as a whole would make it possible to operate without being "afraid of the future." The progressive turn in the direction of new evaluation criteria which was carried out in the large-scale experiment consists in turning away from incentives "for the level of the plan" to incentives "for increase" and this was a unique jumping-off point for the creation of such a mechanism.

When conducting the economic experiment a number of new provisions and conditions for management which have been in effect since 1985 at associations and enterprises of machine-building branches were extended to the Sumy PO imeni M. V. Frunze as well. Further development of the experiment was directed toward increasing the incentives of the labor collective to achieve high final results of production activity on the basis of strengthening cost accounting at the level of the association.

Basic Peculiarities of the Experiment

First, the results of the cost-accounting activity of the association should consist in more than just providing for self-repayment: the association is being changed over to self-financing not only of simple, but also of expanded reproduction. The financing of capital investments will be done exclusively from internal sources—profit and amortization deductions.

Second, the final financial result of the production activity of the association is evaluated by the level of effectiveness—the volume of profit that is obtained. Profit is the basic established indicator of both the five-year and current plans, and production cost is the basic calculated indicator.

Third, a direct and immediate connection is established between the level of effectiveness of the work of the association and deductions into the state budget and the economic incentive fund by means of determining the amounts of these deductions according to stable normatives in direct percentages of the profit.

Thus the task of the experiment is practical testing of the new economic levers: the changeover of the association to self-financing, the introduction of evaluation according to the level of effectiveness (level of profit) and the application of normatives of deductions into the state budget and economic incentive funds in percentages of this level.

Because of this, in the economic mechanism of the experiment in the association we have envisioned principled changes as compared to the

conditions and provisions of the large-scale experiment according to which associations and enterprises of machine-building branches operate.

The maximum level of expenditures per ruble of commodity output is the calculated indicator of the plans. This is a fundamental change. This indicator is the result of an intermediate indicator which is determined as the total of the output of prepared items and it does not take into account the process of dispatching or selling them.

The indicator of the profit volume can be met only by providing for the final result--dispatching the product in keeping with concluded agreements. Additionally, the volume of profits reflects the unsold income and losses (fines, penalties, forfeitures and so forth) and also profit (losses) from the results of the activity of nonproduction subdivisions of the associations (subsidiary farms, repair and construction organizations).

In the development of a system of economic normatives that are in effect during the experiment in the association the goal was to increase their significance in creating motivation for a high level of effectiveness of work. Therefore there was a principal change in the essence of the normative itself. As we know, the advantage of the system of normatives applied in the large-scale experiment as compared to normatives established for the associations (enterprises) before the experiment is the provision of incentives for increasing the indicators. But normatives "for increase" do not provide incentives for the previously achieved level of results of activity and thus they place enterprises that have large reserves in an advantageous position. Moreover, the growth normatives, especially when branch and budget financing of capital investments is retained, "work" to increase the demand for them. Normatives "for growth," undoubtedly, have a progressive basis as compared to normatives "for the plan," but this is only at a particular stage. The more substantiated normatives are those for the level of achievement since they take into account both the results achieved previously and the plant increases which the collective is adopting.

Therefore in the association's experiment the normatives for deductions into the economic incentive fund are established not for the increase in indicators, but in percentages of the mass profit (remaining at the disposal of the association) which provides motivation both for a high level and for growth of indicators. The application of normatives for the formation of economic incentive funds according to normatives from the level of effectiveness (from the volume of profit) is one of the important progressive conditions of the experiment in the association.

The sphere of application of the normatives has also been expanded in the association's experiment. Stable normatives for the formation of the unified fund for the development of science and technology are set for the association. In the large-scale experiment this normative is established only for the ministry as a whole and not for the enterprises. A normative of deductions from the association's increase in profit to go to the ministry is also established. In the large-scale experiment no such normative is applied. The existence of these normatives expands the rights of the association in the areas of the utilization of profit. And the most important thing is that a

normative of deductions from profit into the state budget in the form of tax payments which is stable for the various years of the five-year plan is set for the association. Consequently, the interrelations between the association and the state budget assume a stable, previously determined nature.

In the large-scale experiment there is no guarantee of previously determined deductions into the state budget. They are made in the form of two independent payments: payments for fixed capital and deductions according to the normative from the calculated profit. The payment for funds is not stable and can be established in the amount of 6 percent or 3 percent for less profitable enterprises. When there is no free profit the enterprises need not pay for the production capital at all. The normative of deductions into the state budget from the calculated profit is established when drawing up the annual financial plan and it is not known ahead of time when this plan for production and profit is drawn up. There are no normative initial conditions for determining it and it is formed from the free residual calculated profit after all the planned needs of the enterprise are covered. And since there is also no normative which would determine how much profit can be used for internal needs, the normative of deductions from calculated profit into the budget is random in nature and depends on the ability of the economic services to draw up the financial plan. All this reduces the stimulating role of the policy adopted in the large-scale experiment for interrelations with the state budget.

In keeping with the association's experiment the normative of deductions into the state budget is determined from the ratio (which has taken form in the plan of the base year preceding the experiment) between the volume of profit and the sum of deductions into the budget for payment for fixed capital and contributions of free residual profit. The progressive increase in the normative for the various years of the five-year plan is taken in the amount of 20 percent of the increase in profit according to the plan for the given year.

$$N_p = \frac{(P_p - P_b) \times N_b \times K + O_b \times 100}{P_p}$$

Where: N_p --normative of deductions into the state budget for the planned year; P_p --profit of the planned year; P_b --profit of the base year; N_b --normative of deductions into the budget of the base year; K --constant coefficient equal to 1.2; O_b --deductions into the budget of the base year.

Thus for 1985 this normative was determined in the amount of 26.2 percent, with the existing ratio in the plan for 1984 in the amount of 25 percent. The payments into the state budget according to the normative in 1985 amounted to 15.9 million rubles, and the average annual payment for the preceding 4 years (1981-1984) was about 4.0 million rubles.

Under the conditions of the large-scale experiment significant progressive changes were made in the area of fund forming. The normatives of deductions into the funds were unified for all associations (enterprises) of the branch; they are stable for the various years of the five-year plan; the methods for forming the funds have been simplified; each fund has become independent with

respect to the indicator of fund formation; the increase in the economic incentive funds have been made dependent on the increase of the fund-forming indicators.

But, just as before the experiment, there is no direct connection between profit, which is the source of formation of the funds, and the indicators for fund forming. As a result, additional deductions into the funds are not always provided because of the lack of free profit or a significant sum of above-plan profit obtained as a result of successful work cannot be deposited in excess of the established normatives into the economic incentive fund or in excess of the established limits for the needs for capital construction. These funds can go unused, and at the end of the year the ministry takes them away in the form of surplus circulating capital. Additionally, normatives for the formation of funds for increasing indicators that are adopted in the large-scale experiment place enterprises that have large unutilized capabilities and reserves in an advantageous position, which has already been discussed.

Under the conditions of the experiment in the association the economic incentive funds are formed according to stable normatives from the profit that remains at the disposal of the association, which provides for a unity of the rights and responsibilities in deducting them; the system of fund formation is extremely simplified. The amounts of the economic incentive funds of the association are established on the basis of the corresponding ratios that are envisioned in the plan of the base year of 1984 between these funds and profit remaining at the disposal of the association after deductions into the state budget and payment of interest for bank credit.

Methodological Foundations for Calculating the Material Incentive Fund and the Fund for Social and Cultural Measures in Housing Construction

The ratio between the growth of wages and that of labor productivity that has taken form in recent years is far from optimal. In 1981-1982 it was planned at the level of 0.63; actually it amounted to 0.85.¹ And one must not think that having wages increase more rapidly than labor productivity does causes harm only to the state and that it is advantageous for individual workers. This is not at all the case. Then there is a violation of the coordination between the effective demand of the population and the provision of commodities for it. In 1982 as compared to 1975 the production of industrial products (group B) increased by 29 percent, and the gross agricultural output--by 13 percent, and therefore the material incentive fund calculated according to the normative from the mass profit should be limited to the ratio established for the association of the increase in wages per 1 percentage point of increase in labor productivity.² If in the planning indicators the established ratio is exceeded, the corresponding sum of the material incentive fund, formed according to the normative from profit, must be transferred into the fund for social and cultural measures and housing construction. Thus for this reason in the association's plan for 1985 more than 600,000 rubles were transferred into the fund for social and cultural measures and housing construction from the material incentive fund.

The experiment has the goal of increasing the responsibility of making deliveries under agreements: with fulfillment of the plan under agreements by 100 percent the material incentive fund increases by 15 percent, or for 1985--by 1,095,000 rubles, and underfulfillment of the plan for the agreements by only 1 percent entails a reduction of the material incentive fund of 3 percent, or by 219,000 rubles, and also the right to deduct 15 percent in excess of the plan is forfeited.

Thus the slightest amount of underfulfillment of the plan for deliveries (even by 0.1 percent) reduces the incentive fund of the association by 15.3 percent, or by 1,117,000 rubles. This measure is envisioned in the large-scale economic experiment and it has also been extended to the experiment in the association.

Now let us think about all this and make a simple calculation. The smaller the number of orders, the smaller the production volume, and the simpler it is to fulfill the plan for deliveries by 100 percent. But the increase in the wage fund depends on the increase in the production volume. In the association this is 0.35 percent for each percentage point, or the value of 1 percent is 153,000 rubles of additional wage fund. In order to make up for the money lost from the material incentive fund because of the failure to fulfill the plan for delivery of products by 0.1 percent it is necessary to increase the production volume by 7.3 percent.

Additionally it has been established that the prize position in socialist competition is awarded only to a labor collective which has provided for fulfillment of delivery plans by 100 percent, and if it is by 99.9 percent the prize position is not awarded. And so the manager thinks let the quantity of orders be a little bit less, just so that it is not so difficult to fulfill them and let the increase in production be a little more modest--this is to my advantageous: both materially and morally.

Probably in the future as well we should retain the maximum percentage of underdelivery of products. This percentage, to be sure, is not great, but it must exist both with fund forming and with awarding bonuses and under the conditions of summing up the results of socialist competition. This ensures the labor collectives against random occurrences and helps to make sure that they adopt greater plans for production volume.

And one more problem which pertains to the possibilities of utilizing the actually deducted additional payments from the material incentive fund for fulfillment of the delivery plan. These payments are intended to provide for obtaining an additional effect in the national economy as a result of the fulfillment of all deliveries of equipment by the established deadlines, and they can provide incentive for increasing labor productivity directly at the manufacturing enterprise. And since the plan does not stipulate their amount, consequently it is not taken into account when determining the planned ratio between the increases in labor productivity and the average wages. The sums of these payments must be excluded from the actual average wages when determining the reported ratio, else there will be no possibility of utilizing them and their stimulating role for additional deductions into the material incentive fund for fulfillment of the delivery plans will be reduced to zero.

It is of fundamental importance to determine the sources from which additional deductions into the material incentive fund for the fulfillment of the delivery plan are to be made. Before the large-scale experiment money from the centralized fund for material incentives of the ministries were used for these purposes, and when these funds were inadequate--above-plan profit, but after deductions were made from it into the state budget, for bonuses for socialist competition and for covering other additional deductions for fund-adjusting indicators. As a result, for example, according to the results for 1984 the association was to have deducted an additional 600,000 rubles into the material incentive fund for the fulfillment of the delivery plan, but there was no source for this money.

Under the conditions of the large-scale experiment the additional deductions into the fund are made primarily with money from the material incentive fund that has been reserved during preceding periods because of the underfulfillment of the sales plan. When this source is inadequate it is permitted to reduce by the corresponding amount the deductions from profit into the budget and the payments for production capital. Thus if the associations and enterprises successfully fulfill the plan for deliveries, the state budget fails to receive significant sums, and this means that it will not finance certain previously planned objects and measures. The solution is far from optimal. Even if we envision additional deductions under a planned policy, their source should be determined ahead of time in the plan. The more so since we are talking about stimulating such a most important indicator as the plan for deliveries.

In the association's experiment the sources of additional deductions for fulfillment of the plan for deliveries into the material incentive fund and for fulfillment of the plan for labor productivity into the fund for social and cultural measures and housing construction are envisioned ahead of time in the plan for the distribution of profit in the necessary normative amounts in the form of reserves from profit which remains at the disposal of the association. Thus the budget and the ministry receive their normative share from planned and above-plan profit, and the fulfillment of plans for these indicators is stimulated as a result of profit left for the needs of the association--it must be earned. This policy encourages fulfillment of plans for deliveries of products and labor productivity and at the same time makes it necessary to increase the plan for the volume of profit. As compared to the conditions of the large-scale experiment, the budget has a double benefit: it not only does not lose previously planned sums but, on the contrary, contributions to it increase as a result of the deductions according to a stable normative from the increased overall volume of profit.

In order to increase the incentives of the association to increase labor productivity, under the conditions of the experiment the fund for social and cultural measures and housing construction is increased by 10 percent for fulfillment and overfulfillment of the plan with respect to this indicator. For each percentage point of underfulfillment of the plan for labor productivity the fund for social and cultural measures and housing construction is decreased by 4 percent. Thus when the plan for labor productivity is not fulfilled by 1 percent, the deductions into the fund for

social and cultural measures and housing construction is decreased by 14 percent, which is a significant loss.

The part of the fund for the development of production which is formed from profit is formed according to a normative that is equal to the existing ratio in the plan of the base year. For 1985 this normative was 30.2 percent of the profit left at the disposal of the association, and this amount is not changing in the various years of the five-year plan. In addition to deductions from profit the entire sum of amortization deductions intended for the restoration of fixed capital is deposited into the fund for development of production, while under the conditions of the large-scale experiment 50 percent of this sum was transferred into this fund, and also earnings from property that is sold on the outside.

Under the conditions of the large-scale experiment the unified fund for the development of science and technology is formed according to the normative from the volume of output in wholesale prices for the ministries alone. This fund is established in the financial plan for the associations and enterprises each year through calculation, and no normatives are established. In order to create a stable unified fund for the development of science and technology, with the goal of improving the planning of measures for the future, the association suggests establishing normatives for deductions into this fund for the various years of the five-year plan. The normatives are established in percentages of the planned volume of commodity output for the corresponding year and are determined by two amounts: the full volume of the unified fund for the development of science and technology and the volume left at the disposal of the association.

The profit left after the formation of the economic incentive fund, the unified fund for the development of science and technology and the normative payment to the ministry is used to cover other planned needs of the association, among which primary significance is attached to ensuring the financing of capital investments. But if after all these needs are recovered there is a residual of undistributed profit, it is deposited in the fund for the development of production in excess of the established normative. Thus the association is the complete owner of the profit that is left at its disposal.

A New Policy for Financing Capital Investments

As we know, under the conditions of the large-scale experiment capital investments intended for technical reequipment, reconstruction, expansion of existing enterprises and construction of new ones are financed from all kinds of sources: internal sources, borrowed money, branch and budget sources. All kinds of sources are also used to finance capital investments for nonindustrial construction: housing, social-cultural and municipal-domestic.

Thus conditions are created for increasing the demand of the enterprises for capital investments. The director of the enterprise is bothered by one problem: how to prove the need for additional capital investments, make sure that they are allotted, and supply the contractor. And if this is done, any volume of capital investments is financed: if there are no internal funds,

branch or budget funds are allotted. At the same time, if there is a surplus of internal funds--and this happens mainly when the enterprise is operating with high profitability--but not enough construction, the ministry takes these funds and uses them for the needs of the branch. In any case the collectives of the enterprise are placed in conditions whereby they are not the masters of their own circulating capital. This reduces the striving for efficient management, especially in the long-range plan.

Under the conditions of the experiment in the association a different policy was adopted for financing capital investments. In order to increase the independence and responsibility of the association for technical improvement of fixed capital and the utilization of existing capacities at a high level, it was established that technical reequipment of production would be carried out within the limits of the association's circulating capital using the fund for the development of production and also long-term credit from the USSR Stroybank, which is subsequently repaid from this fund. Thus internal circulating capital and borrowed money are the only possible sources of financing here. Neither branch nor budget allocations can be used for financing capital investments for reconstruction and expansion of existing productions.

Taking into account the fact that the entire sum of amortization deductions intended for restoration of fixed capital is deposited into the fund for the development of production, the association is permitted, if necessary, to use money from this fund for financing reconstruction and expansion as well. Branch and budget funds will be allotted only for the financing of the construction of new enterprises that are part of the association since this construction, as a rule, is done on the initiative of the ministry and requires significant capital investments.

Under the conditions of the association's experiment the financing of construction of nonproduction facilities is envisioned: with technical reequipment and reconstruction of the association--only with internal and borrowed funds (the fund for social and cultural measures and housing construction and USSR Stroybank credit which is paid back with money from this fund); with expansion of existing enterprises--using internal and borrowed funds with the right to bring in centralized sources. Thus in the association's experiment the financing of construction of these facilities is envisioned mainly with its own funds, which in the future will make it possible to eliminate the use of centralized sources for these purposes. The point in the experiment that grants the right, with the agreement of the labor collective, to transfer money from the material incentive fund, regardless of the source of its formation, into the fund for social and cultural measures also serves to carry out this task, but the aforementioned funds can be used only for financing capital construction of residential buildings and other nonindustrial facilities.

More than 70 percent of the association's profit or more than 43 million rubles are used for its own needs. Neither the ministry nor the state budget has a right to take these funds from the association. At the same time the association cannot obtain a kopeck in excess of its own money either from the state budget or from the ministry.

The mechanism for normative distribution of profit adopted by the experiment is simple and easy for any worker for any worker to understand, and it creates clear-cut cost-accounting interest in high results of production. From a ruble of profit, according to the stable normative they deposit: into the budget--26 kopecks, to the ministry--3 kopecks, and the remaining 71 kopecks are for the needs of the association, and they know ahead of time the amounts for each particular purpose.

The association's labor collective becomes the master of its income and expenditures. All members of the collective are more interested in the approach to improving the system of management and they have a clear understanding of its essence and usefulness.

In order to increase the responsibility for technical improvement of production the association also has the right when drawing up plans to redistribute money between the fund for the development of production and the unified fund for the development of science and technology, which will make it possible to improve the system of financing measures for scientific and technical progress.

And one more very important prerequisite: since the association has been changed over to self-financing and so profit is the main source of its development, there is a considerable increase in the role of incentive increments to wholesale prices for highly effective products and items with the state's Emblem of Quality. In this connection one should take note of two new conditions. First, in keeping with the decree of the CPSU Central Committee and the USSR Council of Ministers of 18 August 1983, "On Measures for Accelerating Scientific and Technical Progress in the National Economy," increments can be established at the level of 30 percent of the wholesale price. Such an increment has been established for one of the main items of the association, the GPA-Ts-16 gas pumping aggregate. In all the proportion of products with the State Emblem of Quality in the overall volume of the association's production amounts to more than 60 percent, and in the volume of products that are subject to certification--more than 80 percent. Second, under the conditions of the experiment it is stipulated that products with the state Emblem of Quality that are delivered for export are sold by the association at wholesale prices, taking into account incentive increments, which was not the case before. More than half of the additional profit obtained from these increments is deposited into the economic incentive fund and the unified fund for the development of science and technology in the association. When the association develops only with its own funds the stimulating role of deductions into the funds from incentive increments increases significantly.

The provisions adopted in the large-scale experiment which are directed toward improvement of planning of all areas of economic activity and the conditions for delivery of products and the expansion of rights and the utilization of the wage fund and price setting, and also the system of bonuses for the workers extend to the association. Additional changes are not envisioned in these areas of the activity in the association's experiment.

The rights of being a "master" presuppose responsibility that is commensurate with these and in any production or economic situation the association is obligated to have a volume of profit that is sufficient and necessary for financing expanded reproduction. The conditions for operation become more complicated. Here is a concrete example.

When developing the plan for 1986 they first determined the necessary volume of profit which provides conditions for self-financing. It turned out that with the highest growth rate of productivity and a reduction of production costs it is necessary to take a volume of production which considerably exceeds the created production capacity and is not supported with orders in an amount of 15-20 million rubles.

These last two arguments could have been used as proof for reducing the production volume, but under today's conditions, without any stipulations, we accepted the increased commitments and conducted a search for additional possibilities for production as well as a search for additional orders.

The problem situations under the conditions of changing the association over to providing for cost-accounting incentives to achieve high results in production are apparent even today. A considerable number of them have accumulated, but it is possible to name two essential ones.

First. How does one combine the manager's fear of failing to fulfill the plan with the desire to take on a more difficult one? What economic conditions must be met to surmount this contradiction?

Second. That additional and serious responsibility which we have taken on is far from equal to the expansion of the rights which we have been given. We have now prepared and still preparing significant lists of questions regarding expansion of the association's rights which must be resolved. But there is a psychology which has taken form over many years which calls for giving a peremptory "veto" with reference to instructions which are by and large hopelessly outdated, but they exist and they are being reconstructed slowly. This is an impediment to everything useful. And as soon as one hears the word useful one should not think about how to "strike it down with instructions," but how to introduce and realize it more rapidly.

There is no doubt that during the course of conducting the experiment which, from our standpoint, is very promising, many large and small problems are arising and will continue to arise and be resolved.

The collective has done useful and in-depth explanatory work for studying the essence of the experiment, deepened the cost accounting of the shops, sections and brigades, and revised the system of indicators for planning, evaluating and awarding bonuses to the subdivisions and workers. In all of this work we are adhering to the main line: to provide incentives for the level of the labor contribution and, above all, for quality indicators.

The collective has been working for more than a year under the conditions of the experiment. This amount of time is undoubtedly insufficient for the conditions of the experiment to completely manifest themselves. But the

results of the work during this period tell of the positive influence from the introduction of the conditions of the experiment into the practice of the work of the association.

Expansion and technical reequipment of existing productions and noncentralized capital investments for nonindustrial construction have been financed through the internal funds of the association. All of the basic provisions of the experiment that provide for a stable financial position are in place. The acquired sense of being a master makes it possible to increase everyone's interest in improving the results of the collective's work.

FOOTNOTES

1. Kostin, L., "Productivity and Wages," PRAVDA, 9 September 1983.
2. "The USSR National Economy in 1982. Statistical Annual of the USSR Central Statistical Administration," Moscow, Finansy i statistika, 1983, pp 38-39.

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RESERVES SEEN IN ENTERPRISE ORGANIZATION

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 140-149

[Dialogue between manager and consultant by Kh. G. Khusnutdinov, commander of the Bodaybo Operational Aviation Enterprise of the Eastern Siberian Civil Aviation Administration, and R. R. Suleymanov, candidate of economic sciences, deputy chief of the zonal center for scientific organization of labor of the Ministry of Civil Aviation (Novosibirsk): "The Organizational Potential of the Enterprise"]

[The Bodaybo Operational Aviation Enterprise is located in the center of the gold mining region. Hence the nature of the basic work performed by the aviators: service for the gold mining industry and geologists. Aviation here is practically the only means of transportation which functions continuously year round. Broad prospects are opened up to the city and the aviation enterprise because of the startup of the BAM and the corresponding development of the production forces of the BAM zone.

The Bodaybo Aviation Enterprise was headed by Khalil Galiyevich Khusnutdinov¹—a young manager who is goal-oriented, mobile and has a keen sense for the new. He has the qualifications of a pilot first class. During flights he becomes a direct participant in the production process. The commander strives for consistent improvement in his management activity. This motivated him to search for specialists who are capable of rendering assistance in improving administration. The manager was interested in work that goes beyond the framework of the ordinary activity for centers for scientific organization of labor of the Ministry of Civil Aviation—in personal consultation. He was met halfway. Thus originated his cooperation with candidate of economic sciences, a deputy chief of the zonal center for scientific organization of labor, R. R. Suleymanov. We are publishing below the thoughts of the manager and the consultant concerning the ways in which consulting can affect the enterprise's organizational potential.

The Foundations of Interaction

Manager (M): The specific feature of the activity of operational enterprises in our branch consists in the high degree of regulation of the production

processes (flights, air traffic control and so forth) and the clearly inadequate regulation of processes of production management.

As the manager, each day I feel the existing disbalance of the production and management subsystems of the enterprise. I see in this one of the main reasons for the inadequate effectiveness of production. I am convinced that the enterprise's organizational potential, like its production potential, is not being fully utilized because of our inability to manage effectively.

Of course our difficulties in management are largely objective. The activity of a modern aviation enterprise depends on circumstances in the environment.

The high degree of dynamism of the object of management places increased requirements on the managers. The chiefs of the subdivisions of an aviation enterprise must have flexible thinking and be able to make responsible decisions frequently in short periods of time or with inadequate information.

I consider the development of these qualities in subordinates and the creation of organizational and economic conditions for the effective work of the managers to be one of the main tasks. Having a general idea of the ways of improving the organizational and management activity and without waiting for help from the outside, I undertook something. But the longer I engaged in this the more I needed to communicate with specialists and obtain their assistance: the responsibility was too great and qualified people were needed to help figure it out before I could make changes in the existing practice. Therefore I turned to specialists from the zonal center for scientific organization of labor and asked for consultation on improving management.

Consultant (C): The initiative of the Bodaybo manager is of special interest since the work practice of our center for scientific organization of labor in an immense zone which encompasses the Urals, Siberia and the Far East is basically such that we impose our services upon the enterprises. There are sufficient reasons for the existing stereotype of our relations. To a certain degree the initiative of production managers is limited to a diversity of current affairs, operational work conditions, and there is never enough time for looking at the future.

The center's activity is also forged by certain existing conditions. It is quite clear that management consulting is not a "profiling discipline in organizations of the kind that specialize in problems of scientific organization of labor. But questions of organization and management in real production life are much more closely interconnected than they are in theory, and they must be solved comprehensively and, as a rule, simultaneously, and therefore formal consideration (like whether there should be scientific organization of labor or not?) were set aside in the first meeting with the management of the aviation enterprise. The clarity was introduced by Khalil Galiyevich's question which became the question: "If not the center for scientific organization of labor, then who (!) can help interested local managers not with general, but concrete advice and recommendations for increasing the effectiveness of their labor in a given enterprise!"

It is no secret that frequently managers of the most varied ranks consider the interaction with representatives of science somewhat simplistically: "Investigate, suggest, introduce." Our cooperation with the Bodaybo Aviation Enterprise is arranged according to a different principle: "We work along with and not instead of the enterprise."

Before we became acquainted the manager of the Bodaybo Aviation Enterprise had introduced a number of managerial innovations and many intentions were waiting to be realized. Not all of them were unquestionable. The uniqueness of my position as a consultant consisted in that, in addition to giving my own suggestions, I was to help in realizing the ideas of others, which requires more delicate handling than when dealing with my own. It is necessary to evaluate them both from the theoretical and the applied positions, and to develop and bring them to the point of realization.

The basis for our interaction was an agreement for cooperation concluded in 1984, which stipulated a list and time period for stage-by-stage improvement of organizational and management work at the enterprise. There was to be a clearer determination of the tasks and functions of the subdivisions and officials, certification of management procedures, and many other things. The final goal of our cooperation is to increase the return from the enterprise's organizational potential. In spite of the commitments from the two sides, the enterprise is making no expenditures.

M. The agreement we have is indeed a "gentleman's" agreement since the cost-accounting principles do not apply to the zonal centers for scientific organization of labor in civil aviation. Although I must note with all certainty that all cost-accounting relations do not guarantee anything if the initiative for cooperation does not come from the enterprise, if its management is not interested in making changes in its activity.

Goals of Interaction

C. We are far from the idea of regulating all management activity. This is unrealistic not only from the practical, but also from the theoretical standpoint. Nonetheless it is quite clear, and this is confirmed not only by experience in consulting, but also by the practice of introducing standards for managing industrial enterprises, that a certain regulation of management is not only possible, but also necessary.

M. It seems to me that both the statics of management of an aviation enterprise (distribution of the rights and responsibilities of the managers) and the dynamics (operational-calendar planning, regulation of the course of production) should be objects of regulation.

C. Of course, first of all it is necessary to regulate the statics of management. The goal is, through restructuring the interactions among the subdivisions when resolving production problems and certifying management work positions on the basis of creative development of the Dnepropetrovsk experiment, to improve the utilization of the enterprise's organizational potential. It seemed to the manager and me that it was necessary to consolidate the subdivisions into production complexes with relatively greater

organizational and economic independence than that of traditional subdivisions in the aviation enterprise. This will increase the effectiveness of the functioning of the production system.

According to the principle of homogeneity of functions, flying, technical, commercial, social-cultural-domestic and certain other complexes were created. The managers of the complexes were given great authority. For example, all of the chiefs of the complexes have the same rights for awarding one-time material incentives to their subordinates and applying disciplinary measures, which were delegated to them from the top manager.

As for the dynamics of management, here an attempt was made to single out a common list of long-range and current tasks that are being carried out. We include among the long-range ones, for example, tasks having to do with development, predicting demand and streamlining activity, and the current ones include tasks of calendar planning of flights, coordination, prevention, accounting and control.

The next stage will be the creation of regulations for operational administration, that is, the development of procedures for solving all-encompassing operational problems in the enterprise.

M. Regulation of the solutions to current tasks is undertaken not only as a means of increasing the effectiveness of the enterprise's current production activity, but also as a way of creating favorable possibilities for the managers to resolve long-range problems. In the final analysis I hope for a change in the balance of time expenditures of the manager in favor of long-range planning. This change, in my opinion, is extremely necessary.

After regulating the current aspects of management we intend to take up the regulation of long-range management. We shall carry out this task under the 12th Five-Year Plan. I think that our cooperation will continue.

The Process of Interaction

We worked out the key stages during the periods when I was at the enterprise. To be sure, my business trips to Bodaybo were less frequent than was necessary. The rest of the time, depending on the situation, we maintained communication through documents and the telephone, that is, we exchanged mutual information..

When I flew into Bodaybo, first personally with the manager and then with the management personnel (sometimes individually with chiefs of complexes) we summed up the results of what had been done.

Second, we determined the further goals, tasks and variants of carrying them out, again individually with the manager and then jointly with the management staff.

Third, we held workers' conferences and jointly analyzed the management decisions that had been made.

Fourth, we worked out or obtained expert evaluation of certain documents (orders, provisions, instructions, schemas, schedules) directly with the corresponding managers.

Fifth, we conducted classes on the theoretical aspects of the organization and management and surveys of existing practice and advanced experience.

M. I consider the main thing in the process of my interaction with the consultant to be the following: first, the qualified expert evaluation of our ideas and proposals. After the development of a general approach, the immediate development of provisions and documents was done by our workers. It would have been wasteful to use a consultant for this work. The expert evaluation of their quality, the analysis of overlapping functions, rights and responsibilities—these are the sphere of his activity. With the agreement of the consultant I established that none of the given provisions would be approved without the approval of the latter. This was not only a matter of confidence in the consultant, but also a matter of placing on him certain professional responsibility for the correctness of the decisions that were made.

Second, the realization of the ideas and proposals of the consultant. Third, the presence of the consultant in the sector, operational and workers' conferences that took place while he was on temporary duty at the enterprise. Moreover, he was frequently in my office when solving current problems, visited the facilities and visited the shifts. In a word, he was given the opportunity to live with the concerns of the enterprise, to have diverse information about his activity, to know the people better and, consequently, to carry out his functions better.

There is no doubt that there can be no comparison between interaction with a consultant on the spot and interaction over a distance. We are sorry that we did not manage to establish a certain mandatory time interval for working with a consultant at the enterprise. At the last conference of the management personnel we even suggested stipulating in the agreement the following time segment: once every one or two months. For the time being we conventionally agreed that we would work with him once a quarter.

The Results of the Interaction

M. I consider the main result of cooperation in this stage to be the organizational and disciplinary effect of our innovations. The clarity in determination of the tasks and responsibility that has been noted at the enterprise raises the level of organization, and this means also the return from each production unit. A businesslike and creative situation is arranged. The consultant renders real assistance in gradually overcoming the psychological barrier of the lack of confidence in the innovations that are being conducted and a certain inertia in the thinking of the subordinates.

C. Of course, to state that there is no psychological barrier to changes at the enterprise means to idealize reality somewhat. There is still a good deal to do in order for all the provisions which we registered in the documents to be completely realized in practice.

M. Yes, much still lies ahead, but we already have certain concrete results. A large organizational effect was produced by what in our opinion was an elementary proposal from the consultant concerning the establishment of levels of interaction of officials at the aviation enterprise when solving operational problems. It is no secret that the principle of maintaining horizontal ties, that is, ties for cooperation among people who are not subordinate to one another, is frequently violated in production. People frequently go "over the heads" of other people. In many cases this is not justified by the situations. The main reasons for this kind of behavior are failure on the part of specialists to observe the operational aspect of their direct duties, the desire to place decision-making on the shoulders of higher managers, and sometimes the desire to create the appearance of activity and "prove themselves" to the management.

C. I should add that it is not even vertical, but something like diagonal ties that are typical of the operational activity of the aviation enterprise. For example, the dispatcher of the automotive base reports not to the commercial dispatcher as one would assume, but directly to his chief. The diagonal ties create information noise and, in the final analysis, impede effective management. Therefore it was suggested that they rank and draw up along the horizontal the levels within which workers are to interact. A unique kind of matrix was obtained whose blocks were filled in collectively, in conjunction with managers of the subdivisions. In certain of the blocks there were "blank spots" which show that in this subdivision there were no people who engage, for example, in dispatch work. Consequently, this had to be done by the manager of the subdivision in excess of his own immediate responsibilities. As a result, the management of the enterprise had to search out internal reserves for eliminating gaps in the system of management. Then the levels of interaction of the officials were established by an order of the manager of the enterprise.

Another measure which produced results was the development and introduction of an organizational structure of the subdivision providing technical service and repair of airships, making it possible to improve repair and service.

M. The final results of the work of the enterprise have improved appreciably. In 1984 the volume of work for serving branches of the national economy increased by more than 10 percent. Labor productivity increased by 9 percent and the cost of shipments decreased by 6 percent. The regularity of flights and the art of service improved.

One should especially note the role of consultants in increasing the qualifications of my closest assistants—the managers of the subdivisions. We had been conducting "commander hours" even before our cooperation with the consultant began. But because of conducting joint classes, lectures, imitation situations and "brainstorms" with a consultant, these began to produce better results. We now consider each issue as though from two positions: from within—ourselves, and from without—with the help of the consultant. It would seem that at the "commander's hour" we are practicing the same kind of "group training" which was written about in EKO.² Each time the consultant comes to the enterprise we use him not only for the direct work

under the agreement, but also for lectures and a survey of the innovations in the theory and practice of management and future directions for the development of the branch.

Many if not all production managers have a need for consulting. The resource limitations and the requirements for increasing the effectiveness of production force managers to serve for new solutions, mainly in improving organizational and management activity. There is no question about the need for consulting organizations. The problem is how to create them and with whom to staff them?

In my opinion, question No 1 is the personality of the consultant and his occupational training. I shall say frankly that I would certainly not like to consult, cooperate, and trust my problems and consider the solutions of just any specialist.

The main thing, it seems to me, is the creation of consultative organizations or at least the building in of consulting functions into the existing network of scientific research institutes, and design, scientific organization of labor and other organizations. We need extradepartmental firms, but in addition to these there should be a network of branch organizations. The functions of the branch firms could include consulting on general strategic problems and management problems that are typical for all branches of the national economy. The functions of the branch firm should include specific issues of management whose resolution is impossible without knowledge of the given production sphere.

It would seem that complete reorientation centers for scientific organization of labor toward consultation activity is unrealistic. There are still too many unsolved problems in the development and introduction of areas of scientific organization of labor and management. It is another matter that management consulting should comprise no less than 50 percent of the overall volume of work of these centers, especially the zonal ones, and that the sphere of activity should be sufficiently broad. This should include, in particular, consulting on questions of the development of collective forms of organization and incentives for labor, which the specialists need so much today.

Of course it is necessary to accelerate the development by authorized agencies of problems of the organizational-legal and economic status of management consulting firms as well as the requirements for qualifications placed on the consultants. This work is also extremely important because unless there are essential changes in the practice of management it will be difficult to expect any radical change in the direction of increasing the effectiveness of production. Therefore it would obviously be correct to regard management consulting as one of the effective modern means of intensifying production.

The purely introductory activity for questions of organization of production and management deserves special consideration. It is possible to have a certain integration of consultation and introduction functions in one organization. These organizations could include both groups of consultants and groups of organizers who specialize in problems of internal assimilation

of management innovations. Cooperation between the consultants and organizers within the framework of a single firm could give them new professional qualities.

If one is to speak directly about personnel who are consultants, their training can be conducted on the basis of the All-Union Scientific-Methodological Center for Organization of Labor and Wages of the USSR State Committee for Labor and Social Problems, using as teachers consulting specialists who have already proved themselves.

It would be desirable for the supervision of the consultants to be the responsibility of the all-union scientific economic society, which is capable of conducting systematic seminars for consultants and other measures for management consulting. Within the framework of the boards of the scientific economic society it would be desirable to create sections for management consulting.

FOOTNOTES

1. Recently Kh. G. Khustnutdinov was appointed manager of a large aviation enterprise—Bratskoye—and here too he is actively involved in improving management in conjunction with R. R. Suleymanov.
2. Pyarnits, Yu. E., "Taking Into Account the Individuality of the Enterprise," EKO, No 12, 1984.

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KOMSOMOL LEADER INTERVIEWED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 150-154

[Interview with S. K. Babkin, Komsomol Central Committee worker: "The Youth Housing Complex—On Its Way"]

[Text] [Question] Sergey Konstantinovich, a year ago when we published material about the Sverdlovsk Youth Housing Complex, there were actually only two MZhK's [youth housing complexes] in the country: the Kaliningrad (Moscow Oblast) and the Sverdlovsk. All the rest of them were just being organized. But what is the situation today? And one other question: What interesting new things have appeared in the MZhK movement? What new forms of the social youth experiment can you name?

[Answer] Today youth housing complexes are being constructed in 70 oblasts of the country. This means that the youth have taken the initiative.

Interesting approaches to the MZhK have appeared in various cities of the country. The advantages and the possibilities of the movement have been seen not only by youth, but by many managers. Thus at one of the old plants in Chelyabinsk the youth went to the management with a request for permission to organize an MZhK. In response it was suggested that they earn the right to do this by participating in the reconstruction of the enterprise. People who are preparing to leave the enterprise for almost a year to go to the Komsomol youth brigade of the MZhK must make a significant contribution to increasing the productivity not only of their own personal labor, but also at the enterprise. A fund of working time was created, which takes into account time worked on reconstruction of the enterprise. The brigade including engineers and workers was created and was analogous to the one that is in operation at the Svetlana Association, which your magazine has written about.¹ This brigade engaged in the introduction of robots and manipulators and the startup of new technical equipment. The annual time fund necessary to be included in the MZhK brigade is composed of the following constituents: work under recommendations plus personal labor contributions in the work position.

In Tula they have created unique construction brigades of the MZhK where the managers are permanent and the collectives of workers change. By an agreement with the oblispolkom, construction in the MZhK here is financed with funds

that are allotted for construction of dormitories (but there are enough dormitories in the city). Thus they have legalized the financing of the construction. In Yalta the health resort organizations have asked the Sverdlovsk MZhK to construct a recreation base. The Sverdlovsk workers will be working here during the summer and their families can vacation by the sea during this time.

Certain collectives have spontaneously come to the awareness that the youth housing complex means more than just an apartment. Thus at KATEK, where the situation with housing is difficult, one of the youth brigades first simply assigned people for the construction of a residential building for the brigade, but then the young people understood that this was not enough, that they needed children's clubs and institutions, that is, they came to the idea of an MZhK.

Now in the GDR and other countries they are extensively reconstructing old buildings. Only the old facades remained untouched, and all of the "innards" are changed: electricity, running water, sewerage...bathrooms are being made. Young people are very willing to participate in this. With good modernization they come up with excellent apartments. Riga youth are taking the same path. This is an acceptable path and it is even a solution to the problem in those cities where many residential buildings are not used because they are decrepit. In Leningrad, for example, a group of workers began reconstruction of one building with the support of the Leningrad gorispolkom. It is necessary to give this idea a "push" and see what happens. It would not be a bad idea to organize such a movement in Moscow. There are examples in which the MZhK masters progressive new kinds of housing construction. Thus in Uralmash in Sverdlovsk the youth have developed housing construction with solid prefabricated elements.

As you can see, there is a good deal that is interesting in the MZhK movement. In both the construction and social aspects.

[Question] But does everything turn out well everywhere? Does it never happen that the first group, the first detachment or the organizing committee have received their apartments and then their activity decreases?

[Answer] Yes, the first shortcomings have been revealed. Approximately what you described happened in Kazan. But what does this tell us? Only that the wrong people were in charge of the matter, but it certainly does not tell us that the idea was bad.

[Question] Sergey Konstantinovich, what organizational solutions have been adopted during this period?

[Answer] After the adoption of the decree of the CPSU Central Committee, "On Additional Measures for the Construction of Youth Housing Complexes and Cooperative Residential Buildings for Youth," of 5 July 1985 we began to develop provisions for the housing complex. There arose many issues whose resolution depends on the USSR State Committee for Labor and Social Problems--the withdrawal of youth from production into construction organizations, and on the USSR Gosplan--capital investments and construction materials. One

approach is needed if 5 billion rubles are allotted for the MZhK, and another if 100 million rubles are allotted. We are engaging in economic substantiation of the expediency of the MZhK. This is a most labor-intensive job and we are hoping for assistance from the Institute of Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences. So far we know only that the workers in the detachment are fulfilling 1.5 times the annual norm in 11 months, which makes it possible for each of them to construct 1.5-2 apartments.

What needs to be done? It would be expedient to make a decision at a high level which regulates the legal, organizational and financial issues involved in the planning, construction and functioning of MZhK. One should consider the possibility of including on an individual line in the plans for the ministries and departments the volumes of construction of housing and facilities for social, cultural and domestic purposes with the direct participation of youth in an amount of 5-10 percent of the overall volume of state capital investments allotted for housing construction.

The USSR Gosstroy should probably permit the construction of social, cultural and domestic facilities for the MZhK (children's combines, libraries, clubs, schools, and so forth) according to individual norms, taking into account the youthful composition of the residents.

[Question] There have been many disputes about deductions for apartments in buildings constructed by youth. Has this problem been resolved?

[Answer] It is planned to make the deductions in an amount of 25 percent. Mainly into the fund of the Gorispolkoms for teachers and physicians. In any event they are needed in the collectives at the place of residence, where there are many children. But we shall try to regulate even this process. We shall allow for the young teachers and physicians not to work permanently in the MZhK brigades. But they will be able to help after work and on days off. In order to motivate the contracting construction organizations, we shall assign 10 percent to them; 3 percent will go to organizations at the place of residence; and 2 percent—into the fund of the organizing committees and for veterans of labor who are participating in the work of the MZhK. Although we understand that it is mainly their children who will need this 2 percent.

[Question] But are you not threatened by the large scope of the work and also the fact that since now the initiative frequently comes from above, from the Komsomol Central Committee, there might be formalism in the MZhK movement?

[Answer] We cannot say that we are spreading the MZhK's. We are mainly propagandizing them. It is no accident that the Sverdlovsk workers were sent on business trips by the Komsomol Central Committee almost everywhere where MZhK's began to spring up. But, of course, there are problems.

[Question] But do the Komsomol agencies maintain the idea of the MZhK everywhere, and are they working in them?

[Answer] No, unfortunately. So far many Komsomol workers of obkoms, gorkoms and raykoms have not understood what the MZhK is. They see it as only

housing, ignoring or not completely understanding the social part of the program. And yet the MZhK's are a feasible business which is capable of activating work in the Komsomol. Work in the MZhK's has greatly changed many secretaries of Komsomol obkoms and raykoms. They have begun to understand the real state of affairs better and have changed from functionaries into real youth leaders. The nature of Komsomol meetings has also changed. Real problems, specific statements of tasks, involved conversation...the changes are only just beginning, but the very process gratifies us. It seems that there will be interested response to the MZhK's and the movement will become powerful. But a great deal here depends on the initiative of the Komsomol workers and the youth. At the 18th and 19th Komsomol congresses they discussed the fact that it is necessary to build housing for youth by the people's construction method. But a mass movement has not developed. I think that this was because of the lack of publicity for the MZhK's. In recent years they have begun to write about this. To be sure, the materials have not always been weighed and the emotions have been excessive. Many of these materials would more likely drive people away from the idea of MZhK's.

The article published in your magazine helped us a great deal in our work. The material was clear and businesslike but at the same time it was interesting in form. After it was published people began to look at the MZhK's in a different light. We began to apply your materials. For example, this material was used as a document at a conference in the USSR Gosplan and helped a good deal to formulate the opinion of those people on whom decisions regarding the development of the MZhK movement depended. And today we know that it will "move" throughout the country among the youth. Every new undertaking should have this kind of intelligent publicity.

FOOTNOTE

1. See EKO, No 9, 1985.

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RESPONSES TO MZHK MOVEMENT SURVEYED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 154-158

[Article by L. A. Shcherbakova: "And Anyway—We Are Building a Building"]

[Text] The articles about the Sverdlovsk Youth Housing Complex elicited a large number of interested responses. All of them were very emotional. Its proponents heatedly defend the idea of the MZhK and its opponents come out against it with equal fervor. "The creation of MZhK's is possible only as an experiment and it is impossible to disseminate it extensively," writes S. V. Zarubin. "But will it not end up that we are changing over to subsistence management?" asks V. D. Korobov (Kursk). Some readers, while not denying the importance of the initiative of the Sverdlovsk readers, think that the editorial staff took the wrong approach in elucidating it.

"From the articles in the selection," writes A. N. Khokhlov (Moscow), "one clearly gets the idea that the principles on which the MZhK's function are more effective, more humane and correspond more to the ideals of our society than do the existing organizational forms of production. But there follows a natural conclusion: to change the work of many other units over to the same principles. So far this is not being done. Perhaps this is why we took up the matter of the MZhK?..."

The idea is completely denied by V. V. Kuzinov (Gorkiy): "By the same token one can raise the problem of a 'housing complex for the aged today and tomorrow.'" This ironic phrase reflected the reaction to the new that, unfortunately, was felt by many.

Here is a letter from V. Yu. Anupriyenko (Fryazino, Moscow Oblast) which gives more completely the conclusions of the opponents of the idea of the MZhK: "The materials in the selection elicited a large number of responses from the youth of our enterprise because we have also developed competition for the right to enter a youth construction detachment. And although not all of the problems related to the creation and construction of a complex have been solved as of today, your article gave members of the MZhK a good charge of optimism. But I personally have a somewhat different view of the problem.

"At the present time many good words are being written and said about the MZhK's. And frequently, first in one place and then another there appears the idea that the 'MZhK is a universal method of solving all youth problems.' Indeed, the MZhK makes it possible to solve problems of comprehensively building up new regions and organizing the leisure of the residents and the education of children. But one automatically asks the question: What led to the creation of the MZhK's?"

The main reason for the appearance of the very phenomenon of the MZhK as a socially formed movement of enthusiasts were the long waiting lines for housing. Even in construction organizations young families waited their turn for an apartment for 5-7 years (see EKO, No 10, 1984). The secondary causes were the delay in the startup of facilities for social and domestic purposes in the newly constructed regions: movie theaters, stores, schools, pharmacies, polyclinics, day nurseries, and so forth.

The idea of the MZhK envisions a temporary transfer of youth from subdivisions of the building enterprises to construction subdivisions (for 9-11 months). The statements by Comrades S. B. Vozdvizhenskiy and A. K. Yezhov cited in EKO suggest the idea of forming permanent (!) personnel for the construction industry enterprises under their jurisdiction out of members of the MZhK detachments. What is this but giving a different name to workers and engineering and technical personnel, and at the age when they are able to do their best work? It would seem that it is necessary to remind everyone once again that each person must work conscientiously in the work position assigned to him. It is precisely the quantity and quality of a person's labor that should determine the volume of material goods which the society must grant him.

The builders, and particularly A. K. Yezhov, are fighting for increasing the time period during which MZhK members work on the construction site to a year and a half. It turns out that in creating a collective of residents who have the same ideas we are involuntarily violating the existing sociopsychological ties in a particular production collective.

And, finally, the last thing. Whether or not we utilize the MZhK movement effectively for accelerating the solution to the country's housing problem will depend to no small degree on the organization of the selection of candidates for membership in the MZhK, the organization of the financing of the construction, the transfer of MZhK members to the construction sites, and the distribution of housing in the complex that has been constructed in keeping with normative documents.

No detachments of MZhK members will be able to provide a radical solution to the housing problem unless we increase the effectiveness of the work of construction organizations (and here is something to work on), strengthen labor and technological discipline, and introduce industrial methods of construction more extensively. And in general let "the baker bake pies and the builder build buildings."

But the readers (and the clear majority of them) argued just as ardently for the idea of the MZhK. This was written about by Ye. S. Ivanov (Frunze), A. A.

Novokhatskiy (Severodonets), Ye. B. Kolbachev (Rostov Oblast), M. B. Klimuk (Magadan Oblast), S. G. Rozhdestvenskiy (Orekhovo-Zuyevo) and others.

Let us cite a letter from V. Ye. Petrov, a scientific associate of the Siberian Branch of the USSR Academy of Sciences (Novosibirsk): "Nobody has any doubt that the housing problem must be resolved using various means or that improvement of living conditions and the creation of a developed social and domestic infrastructure contribute to retaining young families and, as a result, they improve the conditions for the labor activity of young married couples. But the basic arguments revolve around the question of whether or not it is possible to take scientific workers away from their basic activity for 9-12 months and how this will affect their professional growth. One can assume that the absence of workers whose activity does not involve being constantly engaged in the production of new knowledge (activity under contractual agreements) will not cause any harm to fundamental science (although it might have a temporary effect on the professional growth of the individual worker) since his work can be transferred for the time he is at the KMSO to another worker within the laboratory, sector and so forth. And if the scientific associate is engaged in fundamental science, when separated from his main job he might even lose the 'honor of a discovery.' But in this case only he himself can decide where to place the emphasis on the scale of values (the priority of a discovery, dissertation, improving housing conditions for his family, collectivist relations at the place of residence, and so forth) which is presented to him in the given period of his life."

And here is a suggestion from A. Yakimov, an economist from Bendery: "If I were a participant in your 'round table' I would not fail to say the following. There exists a policy in the country whereby we construct dormitories for youth at almost every enterprise. But does the construction of dormitories solve the problem of satisfying the workers' need for housing? No, it does not. The construction of dormitories contributes to increasing the city's population with people who come from the country. It is no wonder that this housing policy is considered by G. A. Kulagin (and he is not the only one) to be "close-handed and inadmissible" (see EKO, No 3, 1983). Perhaps it would be more expedient to transfer the funds allotted for the construction of dormitories to the construction of MZhK's? The proportion of these funds in the overall volume of housing construction is great. For example, in Bendery from year to year these funds comprise about 25 percent. Here is the reserve for satisfying the need for housing!"

The reader V. G. Koshirov asked the editorial staff if there is experience in the creation of a plant residential complex where the people are joined together by their common work. Such experience exists in the Uralmash Association and in the plant for large panel housing construction (Sverdlovsk). And here are some lines from the letter from N. V. Minayeva: "We built the building—the building builds us"—important information which, as is frequently the case, EKO was the first to report. Many readers were bothered by the notion that the MZhK movement might die out. V. B. Kolchanov (Leningrad): "The MZhK is a very necessary thing (it must not die out)." I. D. Shakhurov (Tomsk): "I personally have already solved my housing problem, but I am still an ardent proponent of the MZhK. Do not let it die out!" This was also written about by Z. K. Kochubey (Yaroslavl), V. I. Zdorovetskiy

(Zaporozhye) and M. A. Usoltseva (Tyumen). Here is what V. A. Yorkov (Kharkov Oblast) wrote: "The MZhK is the dream of our small city (30,000 residents). The population is now decreasing since the youth are leaving for the cities. The MZhK would make it possible to slow up this process." It is quite possible that in this suggestion lies the "second breath" of the MZhK movement.

Many readers, for example, M. P. Maslov (Moscow Oblast), A. A. Aksenov (Maritime Kray), and A. M. Yakushin (Vilnius) speak of the great social significance of the experiment. "It seems to me," writes I. I. Khnykin (Magadan), "that the social significance of the MZhK is great, especially when it comes to communist education, the establishment of new forms of social interaction and the delegation of distributory functions to public self-management. But one fears that this might die out or might not grow into an organized, formal measure." An excerpt from the letter of A. M. Yakushin: "This material shows that youth can and want to work. They need support and independence."

The editorial staff is very glad that the destiny of the MZhK has basically been decided and this means that the information about it reached the reader on time. With the adoption of a special decree by the USSR Council of Ministers in 1985 many problems disappeared. The MZhK lives and will continue to live!

Incidentally, one also has occasion to hear certain remarks from skeptics. Thus, V. A. Belichenko writes: "I think that a microrayon consisting of people all the same age will create many more problems. There is still a good deal to think about!" This is true. Sociologists should have their say. But so far our advice to everyone who has any doubt about the idea and is desiring to create an MZhK is: Go to Sverdlovsk, take a look at the actual buildings that were constructed by the enthusiasts, drop into the KYuT, the polyclinic, the kindergarten, look at the plan for the school that is under construction and talk with the people--and you will believe in the MZhK as did the EKO brigade which went to Sverdlovsk with a certain amount of prejudice.

What were the goals of the editorial staff when it published this material? Not the development of a subsistence economy, but additional housing construction through the participation of youth--this is one of the ideas of the MZhK. The editorial staff wished to show how an economical attitude toward the building in which one lives, toward the courtyard where one's apartment is, led to the organization of social self-management. It wanted to show how in the MZhK collectivist attitudes of neighbors are generated and something which seems to have been forgotten today, how new possibilities appear in educating children. As one of the organizers of the complex, Ye. M. Korolev, says, "We are working for the children."

And, finally, another important aspect: we have tried to show how important the unpaid initiative of the masses can be, what a great economic and social effect they can produce, as was the case in Sverdlovsk. Not to fear initiative, but to support and direct it--herein lies one of the qualities of the modern manager.

On a bench in the yard of the Komsomolskiy-1 Microrayon in Sverdlovsk (this microrayon is being built through the forces of the Komsomol Youth Detachment of the Youth Housing Complex) sat a very young mother. Next to her, in a carriage, her firstborn slept. We began to speak. It turned out that the young family had a separate apartment. How did you manage to get it?—I was interested. "Papa built a home for us!"—the young woman said with pride....

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PROTECTION NEEDED FOR SOFTWARE

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 159-165

[Article by A. B. Gelb, Institute of Cybernetics of the Estonian SSR Academy of Sciences (Tallinn): "Software Asks for Protection"]

[Text] The problem of legal protection for computer software has been discussed in the world press for more than 30 years, but not a single country in the world has yet adopted a legislative document regarding this issue. Still, this subject has been studied in detail and analyzed. Articles in patent, legal and scientific journals contain concrete proposals for a legal system, for expert evaluation and so forth for software objects.

We have been dealing with this problem for a long time in the USSR, the first article appearing in 1966. Unfortunately, both the advocates and the opponents of the protection of computer software had expressed their viewpoints on this problem separately. The matter has never reached the point of broad public discussion involving various specialists in law, expert evaluations, programs and so forth. Certain legal documents have been adopted unilaterally, without extensive discussion.

At the present time legal issues involving the registration, protection, utilization and transfer of computer software objects are regulated by two documents: the clarification of the State Committee for Inventions and Discoveries No 4 of 13 November 1975, "On Recognizing as Inventions Computer Equipment Objects That Are Characterized as Software" and "Provisions on the State Supply of Algorithms and Programs" (GosFAP) with the corresponding instructions for documentation, registration and expert evaluation of programming means.

The first document discusses the small proportion of programming means which can be recognized as inventions. Not all kinds of programming means are included in it. The formulations in this clarification are extremely vague and make it possible to call a very broad range of software objects inventions. The opinion of the representatives of the State Board of Expert Evaluation of Inventions, on the contrary, narrow this range unjustifiably, and this document does not coincide with certain points of the clarification. According to the clarification it is not the software object itself that is

protected, but some technical equivalent. Therefore the protection can end up being ineffective.

The other document—the provisions on the GosFAP—encompasses practically all possible materials pertaining to computer software, auxiliary and accompanying materials, descriptions, instructions and also scientific research work on this subject.

The main purpose of the GosFAP is informational. Its provisions and instructions do not envision the creation of an effective system for active selection, evaluation, comparison, or discovery of the quality or other properties of programming means. It is also not provided with the expert evaluation envisioned on a public basis, which must be done practically on the basis of the local supply.

Thus both documents regulate something, but they do not essentially solve the problem. At the same time the high effect from program solutions in managing production, in technological processes, planning, organization and scientific research is generally known. The expenditures on these developments are also great.

The process of programming is similar to the process of invention. This comparison arises of its own accord for it is actually only in invention work that there exists an effective system of protecting the object of intellectual creativity itself, the authorship and the rights of the author, and also a system of incentives. In both cases great efforts are expended on the development of a new and original object. The specific nature of invention work in past decades has been that most frequently developments are created which exert an influence on some component, instrument, machine, parameter of a process or property of a substance. But large programming systems encompass entire technological processes, productions, shops, systems of machines, machine tools and so forth. Hence there is a greater economic, production and scientific and technical effect than there is from many technical inventions. Moreover, it is simpler to introduce programming means than it is the majority of inventions.

How are the rights of the authors and organizations that create both of these protected?

The authors of inventions receive authors' certificates which register the priority, authorship and object of invention. This gives them the right to remuneration for inventions that are introduced and also a number of benefits. The organizations in which the inventions are created receive a certificate which registers the fact of the creation of the invention in this organization.

The author of a programming means can publish an article on this material, which will establish its authorship. In the revisions and instructions of the GosFAP the authors of programming means are not mentioned at all and are given no rights. The legal questions are considered in the provisions and instructions in an extremely limited way: in points 35 and 36. The provisions give the rights of the head organization of the GosFAP in the organizations

conducting local FAP's. But the rights of the developer organizations are not stipulated anywhere.

The organizations included in the network of the GosFAP actually become the owners of the programming means turned over to them without payment. They have the right to copy them, to make changes, to introduce them in large centers, even without coordinating this with the development organizations or the authors. Nonetheless there is repeated recording of the duties of the developer organizations, which must correct free of charge the shortcomings and mistakes that have been revealed, offer all changes and additions in the corresponding FAP's and so forth.

The developer organizations still have the right on a contractual basis to render services to the organizations that are consumers of the programming means. But they are paid only for the services themselves (copying, consulting, machine time and so forth). "An estimated calculation does not include expenditures on the development of the programming means." Such a negligent attitude toward the authors-developers of computer software is in no way justified.

On the other hand, the increased interest of foreign firms in Soviet products in the area of computer equipment and software, the creation of computer systems and networks in which the information can even cross state borders, and so forth makes legal protection of the programs even more crucial.

What are the possibilities of creating a system for protecting computer software objects which would meet the requirements, specifications and spirit of software?

A consulting group of nongovernmental experts of the World Organization of Intellectual Property (VOIS) in 1977 developed "Standard Provisions Concerning the Protection of Computer Software."¹ Participating in the work of the group was a Soviet delegation headed by the first deputy of the State Committee for Inventions and Discoveries, L. Ye. Komarov. In the introductory survey for the standard provisions the authors suggest that all states first decide for themselves the answers to questions:

1. Does computer software need protection?
2. Are any of the existing legal systems suitable for protecting computer software?

And if the states answer in the affirmative to the first question and in the negative to the second, then it is necessary to study the standard provisions and the possibility of using them in their national legislation. Moreover, the standard provisions can be used as: a) an independent legal act, b) an addition to one of the existing legal systems, c) the basis for developing their own legal norms for the protection of computer software.

Along with the standard provisions the consulting group developed the draft of an international agreement for the protection of computer software, but they did not complete the work. It was decided to complete the development of

standard provisions and continue the development of the draft of the agreement taking into account the results of the utilization of the standard provisions and the remarks on the shortcomings and the necessary additions.

Unfortunately, the results of the work of the consulting group were not brought before the broad public and were not discussed. No measures were taken for the creation (on this or any other basis) of a Soviet system for protection of computer software.

A strange situation was created. For many years the problem of the protection of computer software was studied, discussed and developed in the State Committee for Inventions and Discoveries and on the pages of the magazine VOPROSY IZOVRETELSTVA. Finally a scientific and technical expert evaluation was conducted for inventions and authors' certificates were issued for a fairly large number of software objects. Additionally, the State Committee for Inventions and Discoveries represented the USSR in international forums on this problem.

After such a large amount of complicated and highly skilled work the State Committee for Inventions and Discoveries withdrew from this activity, and it does not even send its representatives to seminars for the discussion of the problem, claiming that now the State Committee for Science and Technology handles this problem.

And the State Committee for Science and Technology, which has never before handled problems of protection of the developments of intellectual creativity and expert evaluation of scientific and technical development must now, without any preliminary preparation and without any investigation or practice in this area and, finally, without any specially trained personnel, while "on the run" take hold of the relay baton and find a solution to the problem.

The only alternative is emergency enlistment of a broad range of representatives of all authorized organizations for discussing the problem and developing proposals and recommendations for authorized Soviet agencies.

What are the possible solutions to the problem of protecting computer software under our conditions? There are three of them: protection according to the norm of the author's law, according to the norms of the inventor's law, and according to a special, newly developed legal institution.

In order to determine the necessary and appropriate legal institution it is first of all necessary to determine what such a system of protection should provide. In our opinion, the creation of an effective system for protecting computer software could provide:

protection of the rights of developers of software;

selection of the best developments, which can be recommended for extensive utilization;

assistance in the standardization of means, methods and products of programming;

the provision of incentives for the best programmers;

the creation of prerequisites for evaluating the quality of the work of programmers;

the establishment of a policy in the utilization of developments in the area of software (similar to the utilization of inventions);

the creation of legal foundations for compensation for expenditures when software objects are transferred to other organizations;

reduction of the quantity of parallel developments through a better system of information concerning program software;

facilitation of the work of newly created computer centers;

the utilization of selective expert evaluations of the most original and effective software objects that make it possible to save labor expenditures of specialists and machine time;

the actual creation of a system of three-step selection of algorithms and program;

routine and less effective programs will generally not be submitted for protection, some of the objects for which there are applications will not be given expert evaluation, and the most valuable, original and effective objects will be recommended for utilization.

The author's right is essentially incapable of providing for effective performance of these functions. Moreover, as we know, it protects only the copying of the external form, without protecting the idea itself, which in the case of software is clearly inadequate. In the event of the utilization of the author's right we would protect not the software object itself, but a book, brochure, article or some other publication in which it is presented.

In certain countries (the United States, Great Britain and others) attempts have been made to publish special norms of author's law for protecting computer software. But the wave of judicial precedents concerning author's law which took place in 1981-1984 in many countries (the United States, France, Japan, Great Britain, the Netherlands, Australia, the FRG, Canada and others) showed that this form of protection is not very effective. Actually they weeded out only a small part of this so-called piracy in the area of software, including cases where the user himself admitted (apparently for advertising purposes) using someone else's program (usually that of a well-known firm). And even in these cases the court could not always rely on the procedure of author's law (the establishment of external similarity), and frequently was forced to compare the developments in their essence, which actually goes beyond the framework of author's law (this is protected by patent law).

Apparently it is also inexpedient to create a special legal institution. For it will still combine individual norms of author's and inventor's right. And this can also be achieved within one of these systems. The only system that is capable of effectively performing the aforementioned functions is inventor's law.

It is not at all mandatory that computer software objects be protected precisely as an invention. For in the system of inventor's law one protects industrial models, trademarks, and even breeds of animal and strains of plants that are on a par with inventions.

In our opinion, for computer software objects protection by inventor's law with the introduction of additions into the normative documents and the list of objects of protection is possible in the following variants:

as an invention (apparently a small proportion of the software objects);

along with existing objects of industrial property--discovery, invention, industrial model, trademark--to recognize the computer software object as an other object of industrial property;

along with existing objects protected under inventor's law--a device, method, substance, application or strain of a macroorganism--to recognize the computer software as an independent object of invention;

along with existing objects of protection under inventor's law that are equal in legal status to inventions--new strains and hybrids of agricultural crops, breeds of agricultural animals and poultry and so forth--to legally equate computer software with inventions.

Regardless of the variant that is selected it is necessary to develop a summary of norms and prescriptions especially for this type of object--computer software. According to the new system it would be expedient to protect not only the algorithms and programs, but the entire complex of software objects (algorithms, programs, instructions, program descriptions and other auxiliary material). But here it is obvious that the corresponding auxiliary material exists only in conjunction with the basic objects--the algorithm or program--and can neither be an innovation nor have a positive effect.

It is necessary to take into account one more circumstance that is of no small importance: for any newly created system of protection it would be necessary also to create its own systems of information, expert evaluation, and incentives, and coordinate all this in various state, economic and financial levels. And in the system of inventor's law all this is already existing and operating successfully.

A combined solution is also possible, for example, joint processing of application materials by the VNIIGPE and the GosFAP, similar to the way the State Committee for Inventions and Discoveries and the Ministry of Agriculture collaborate in the area of agricultural inventions.

FOOTNOTE

1. The text of the draft law was published in a book by the author: Gelb, A. B., "Sovremennoye sostoyaniye problemy pravovoy zashchity programmnogo obestecheniya EVM" [The Modern State of the Problem of Legal Protection of Legal Software], Tallinn, 1983, p 175.

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UNNECESSARY USES OF WOOD REPORTED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 166-167

[Article by S. A. Uskov, chief of the Neftegorskiy Rayon Communications Center (Kuybyshev Oblast): "The Mailing Container—Tomorrow"]

[Text] The authors of many articles, including in EKO, justifiably complain about the shortage of timber and the regular failure to deliver timber materials, veneers and other kinds of lumber. But we should like to speak once again about efficient utilization of these valuable materials. We are speaking not about savings and thriftiness, which speak for themselves, but about efficient utilization. Let us take a look at how we use valuable timber and materials made of it. Is it necessary to utilize them this way in certain branches or can they be replaced with something else?

For an example, let us take the postal service, or, rather, a concrete operation—the sending of mail. As we know, in order to send mail, with the exception of outsize mail, we need mailing containers which are manufactured, as a rule, out of plywood or fiberboard that is composed of timber materials. The quantity of mail increases from year to year. In 1983 communications enterprises processed 226 million pieces of mail and used no less than 500,000 cubic meters of timber for manufacturing mailing containers, and it was not simply timber, but plywood or fiberboard. In fact, the mailing containers, as a rule, are used only once, and then we do not know what to do with them: it is a pity to throw them away, it is almost never possible to use them again, and sometimes there is no need for this. First we put them out on the balcony or on the storeroom, and when we get tired of looking at them we throw them away anyway.

And the solution is simple. It is necessary to make a sufficient quantity of plastic standard containers for repeated use and supply them to all communications divisions. Unfortunately, the planning agencies do not allot plastic for this purpose, and this is a pity. For if they did we would not only save a large quantity of timber, but we would also receive many other advantages, namely:

the application of reusable standardized containers when processing parcels will reduce labor expenditures by 20-30 percent;

there will be a considerable reduction of the expenditure of paper, cord, sealing wax and time on packing, which will increase labor productivity;

the parcels will be more convenient to store, transport and sort mechanically;

in my opinion, there will be a considerable increase in the art of service and there will be fewer complaints and less confusion since both the sealing and the opening of containers will be done in the presence of the client.

Injuries occurring when working with the parcels will decrease, and trash and rubbish will be eliminated at communications enterprises;

there will be less of a chance of sending unpermitted or dangerous contents since the packaging will be done on the spot;

the overall number of parcels that are shipped will increase because of the greater accessibility to the clients and the simplification of this operation.

The client need not acquire the box, put it together, write the address on it, or take it to or from the post office. All he has to do is bring the items to be sent in a bag, and when he receives the parcel, conversely, transfer them to his bag directly at the post office.

The mail is the most widespread, the most accessible and the oldest branch of communications, which has existed for more than a century. At the same time it is the most labor-intensive and the most unmechanized branch, which also has "ancient" policies and customs. At the present time mechanization and automation are more and more confidently pervading the technology of postal communications. There are canceling machines, transporters, automated machines for selling envelopes, postcards and stamps, machines for sorting letters and packages, and so forth. "Postal automat" pavilions have appeared in many cities. So it is even more troublesome that sending packages costs the state so much and causes so much concern for communications workers and clients.

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UTILIZATION OF SMALL-SCALE MECHANIZATION URGED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 168-172

[Article by S. V. Ivanov, candidate of economic sciences, Finance-Economics Institute imeni N. A. Voznesenskiy (Leningrad), and P. A. Chernov and V. P. Dmitriyev, engineers, RSFSR Gosplan (Moscow): "Taking Advantage of the Possibilities of Minor Mechanization"]

[Text] Among the areas for reducing manual and heavy physical labor an important position should be assigned to means of minor mechanization and organizational supplies. The universality, the insignificant cost and the high effectiveness in various operations are their distinguishing qualities.

Among means of minor mechanization (SMM) we include only mechanized implements of labor, which follows from their basic purpose: to facilitate manual labor, replacing it to a large degree with the work of machines and mechanisms. They are intended for use by one worker. Therefore their size and weight specifications are important. They must be light, small in size, convenient to operate, mobile, as a result of which they can easily be moved in space and several implements of the same kind can be used for various operations.

An example is a mechanized instrument with several attachments which can be used to perform various operations.

The utilization of SMM, as a rule, does not lead to a change in the technological process: these means are easily included in the existing technology and therefore their application does not require the considerable material expenditures which usually accompany the restructuring of production technology.

It is possible to single out the following kinds of SMM: mechanized instruments, adapters for equipment, light ground transportation, certain kinds of lifting devices, and narrowly specialized devices and mechanisms. Their production has been organized at enterprises of more than 30 ministries and departments in union industry. The main manufacturers of mechanized instruments are the Ministry of Construction, Road and Municipal Machine Building; lifting devices--the Ministry of Heavy Machine Building; light

ground transportation--the Ministry of the Automotive Industry and the Ministry of the Electrical Equipment Industry.

As preliminary calculations made in the RSFSR show, the satisfaction of the needs of the republic's industry for means of minor mechanization will make it possible to reduce the absolute number of workers employed in manual labor in more than 30 professions, including handymen--by 4 percent, handymen-repair workers--3 percent, and packers--5 percent. The provision of cargo grasping adapters and light ground transportation will lead to an absolute reduction of the number of warehouse workers by 2.5 percent, transportation workers--by 3 percent, and loaders--by 5 percent. Many kinds of work, particularly machine assembly, construction-finishing, lifting-transportation, loading-unloading and repair work, because of the peculiarities of the technology or the inadequate level of concentration of production, can be mechanized only by using means of minor mechanization.

The satisfaction of the demand for SMM in industry under the jurisdiction of the RSFSR Council of Ministers during the years of the 10th Five-Year Plan amounted to 45 percent and it was practically the same during the years of the 11th Five-Year Plan. The shortage of mechanized instruments causes special concern. Thus according to data of the ministries the provision with mechanical saws of all kinds amounts to 33 percent, screwdrivers--34 percent, all kinds of scissors--23 percent, drilling machines--43 percent, and polishing machines--47 percent.

In a number of cases the technical and economic indicators of domestic instruments reach a high level. For example, the pneumatic punches produced by the Odessa Plant for construction and finishing machines have a service life of 1,000 hours. The economic effect from utilizing one pneumatic punch reaches 5,000-7,000 rubles per year.

At the same time many models of SMM are produced with an unsatisfactory technical level. Essential shortcomings of electronic instruments, for example, are the insufficient power, the large weight, and noise and vibration during operation. The service life of these instruments is less than the guaranteed service life set by the manufacturer. The range of means of minor mechanization produced by industry is not broad enough.

A large shortcoming in the production of SMM is the fact that they are not unified. A large number of varieties of the same types of mechanisms are being produced. Thus just when it comes to nut wrenches we produce 40 kinds, screwdrivers--30 kinds, telphers for small cargos--15 kinds and so forth.

More extensive application of SMM is also impeded by the inadequate production of the corresponding auxiliary equipment: currency converters, plug joints, filters, oil sprayers, and so forth.

The reasons for the low level of support for SMM lie also in the poor study of the demand for them by the union ministries and also in the planning of SMM, which is done in a consolidated way and for an extremely limited range of technical equipment. As a result, the orders from republic industry for this technical equipment are not satisfied from year to year by the USSR Gossnab

and its territorial administration.

The low level of provision of supplies for SMM forces the ministries and departments of the RSFSR to look for possibilities of organizing their production through their own forces, frequently taking advantage of small mechanized shops and sections that were not intended for these purposes and also less productive metal-processing equipment.

In 1985 the production of SMM amounted to 14.4 million rubles, and, according to the ministries' proposals, in 1990 it will amount to 20.7 million rubles. Yet the demand for these is increasing at rapid rates. In 1985, according to calculations, it will be about 200 million rubles, and in 1990--almost 250 million rubles. Taking into account the suggestions of the ministries and departments of the RSFSR concerning increasing SMM production, and also the annual funds for obtaining SMM from the USSR Gosplan, the level of the satisfaction of the demand for SMM in 1985 will be 52.7 percent and in 1990--50 percent, that is, during the 12th Five-Year Plan it will decrease, which will have a negative effect on reducing manual and heavy physical labor.

One cannot but pay attention to the current high cost of manufacturing SMM and parts for them. For example, according to information of the RSFSR Goskomselkhoztekhnika, the cost of manufacturing on order two parts for a pneumatic nut wrench is 53 rubles while the cost of a series-produced pneumatic nut wrench is 20 rubles!

In order to satisfy the needs of the ministries and departments of the RSFSR for means of minor mechanization it will be necessary to create productions that specialize in their output. They should be organized in two ways: first--through the creation of base shops and enterprises by individual ministries and departments in order to satisfy the needs for SMM for narrow branch application, and second--through the creation of a republic scientific production association under the RSFSR Council of Ministers (RNPO) for means of minor mechanization. It should be made responsible for the determination and satisfaction of the demand of the RSFSR national economy for certain kinds of SMM for interbranch purposes and also for branch SMM of those ministries and departments which do not have a material and technical base necessary for creating independent production.

It would be expedient to make the RNPO that is created responsible for following a unified technical policy in the production and distribution of SMM, their standardization and unification, the development of norms and normatives for supporting them, and the development of new models of SMM for reducing manual labor of workers in the more widespread occupations. To do this it will have to be assigned the functions of the head organization for the development and planning of SMM, and as part of the association one should include a planning and design bureau and an experimental plant.

The discussion of the problem showed that there are several opinions regarding the ways and forms of organizing the RNPO for means of minor mechanization. One of them consists in constructing a new enterprise with a capacity of 150,000-200,000 units of mechanized instruments per year and attaching to it

strong planning-design and economic subdivisions. It would be directly under the jurisdiction of the RSFSR Council of Ministers.

Another variant of the solution to the problem envisions a stage-by-stage creation of the RNPO on the basis of one of the republic industrial associations, for example, Rosmashmestprom of the RSFSR Ministry of Local Industry, which has a certain amount of experience in the production of SMM, technological fittings and nonstandardized equipment. In 1983 enterprises of this association manufactured 3 million rubles' worth of SMM with an overall volume of product output of more than 80 million rubles.

Enterprises of other ministries and departments of the RSFSR could also be selected to be included in the RNPO, while retaining their departmental jurisdiction in the first stage and then subsequently being given a completely different profile and being included in the RNPO.

A second variant envisions a less radical solution to the problem but it makes it possible to begin the production of SMM in shorter periods of time. If the variant with the construction of the new enterprise involves such difficulties as finding additional capital investments and problems of the organizational establishment of interbranch production, the second variant sometimes encounters negative attitudes from the proposed base ministries (Ministry of Local Industry, Ministry of Consumer Services).

Practice shows that while finding a fundamental solution to the problem one should not ignore the additional possibilities of increasing the production of SMM as a result of local resources. Such possibilities, for example, are to be found locally in many base vocational and technical schools of machine-building enterprises and associations.

It is also necessary to organize centralized planning of the production of SMM for industry that is under the jurisdiction of the RSFSR Council of Ministers. It would even be expedient to do the planning in physical and value measurements and to calculate the fulfillment of the production plan in terms of both kinds of indicators. This approach will make it necessary for the manufacturing enterprises to fulfill the plan with respect to the entire products list.

Another important aspect is the determination of the needs of the enterprises and associations for SMM. When forming their orders the ministries and departments experience a critical shortage of normative technical documentation concerning the norms for the demand for SMM, the service lives, and the normatives for technical servicing and repair of SMM. A necessary prerequisite for determining the need is the development of a unified interbranch catalogue of SMM. The "Unified List of Means of Minor Mechanization for Application in Construction" published by the USSR Gosstroy in 1979 as well as catalogues of branch kinds of SMM prepared by certain ministries could serve as an example for this catalogue.

Apparently one should practice the planning of the production of SMM not in individual implements of labor, but in norm-sets that include a previously stipulated set of instruments. For example, the norm-set for the handyman-

assembler could include: sets of pneumatic nut wrenches, devices for threading pipes and a device for winding wire, drilling machines, a pneumatic vise, a pneumatic screwdriver and a wrench with a mechanical booster. This policy would not only provide for a higher level of mechanization of labor and the utilization of SMM, but would also simplify planning.

In parallel with the organization of the production of means of minor mechanization in the ministries and departments of the RSFSR and other republics it is necessary to take measures to increase the production and deliveries of SMM for interbranch application by union ministries, and above all progressive models of mechanized instruments.

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INFORMATION FROM VISIT TO AMERICAN UNIVERSITY REPORTED

Novosibirsk *Ekonomika i Organizatsiya Promyshlennogo Proizvodstva* (EKO) in Russian No 3, Mar 86 pp 173-184

[Article by A. V. Zhuplev, candidate of economic sciences, Moscow Institute of Management imeni S. Ordzhonikidze: "The Business School at the University of Maryland"]

[Text] The University of Maryland¹ is one of the 10 largest in the United States. In 1982 it had 81,500 students (including on foreign campuses) in 104 specialties.

From the books of Ilf and Petrov, Peskov and Strelnikov we know that America is a one-story or at best a few-story country. But having forgotten about this in anticipation of your first encounter you imagine the university as something like a giant skyscraper. In reality it is made up of three- and four-story red brick buildings with white columns surrounded by greenery, the streets and sidewalks are well planned, and squirrels jump from tree to tree. People, clothing and dialects have come here from all corners of the earth...

Among the graduates of American universities there is a fairly large proportion of people who specialize in management (in 1981 it was 20 percent). According to data of many investigations, the specialization "business and management" is the most popular along with specializations in medicine, computers and certain areas of engineering. The College of Business and Management is one of the divisions of the University of Maryland.

The system of business education (like higher education as a whole in the United States and many other countries) is in two stages. After 4 years of study one earns a baccalaureate degree and a diploma. In order to obtain the degree and diploma of master of business administration it is necessary to take another 2-year course.

Such a system has a number of advantages, in particular:

for the majority of students the period of training is limited to 4 years, they begin working sooner, and fewer people are taken out of the sphere of production at the same time;

the two categories of diplomas help to organize more effectively the specialization of the workers, the division and cooperation of management labor and to save on wages by using people with bachelor's degrees in less complicated jobs for which they receive lower wages than those with master's. In 1981 the ratio among business school graduates between those with master's and bachelor's diplomas was 1:3.5;

many people with bachelor's degrees try to become masters in order to obtain more interesting and highly paid work. The additional levels of advancement provide incentives both for increasing the education of workers and for better work on their part.

Within the framework of the bachelor's degree program in the college at the University of Maryland they have the goal of giving the students a general education with a certain specialization in the areas of accounting, finance, economic and mathematical methods in management, marketing, personnel and labor relations, production administration, organization of transportation and so forth. An indispensable requirement for the student when selecting his course of study (some of them are requirements and some of them are electives) is that about 40 percent of the classroom time during the 4 years of study should be spent on subjects determined by the college personnel. The remaining can be selected from those offered by other departments and divisions of the university. Moreover, the student's average grade point for the entire period of study should be no less than the previously determined average level. Otherwise the diploma is not granted. In order to obtain it it is necessary to pay tuition again and to take various training courses.

The grade obtained from taking one course or another is formed, as a rule, from three grades: on the examination for half (or some part) of the course, the final examination for the entire course, and the results of classwork. Additionally, the teacher takes into account the quality of the student's current work. But in the College of Business and Management there are no methods that make it possible to determine precisely the quantitative influence of each of these grades on the final grade. In general it should be noted that the right to make decisions regarding many current issues of a training and methodological nature and scientific research is delegated to the teachers themselves. Department meetings are held fairly rarely: two to three times a semester.

The second stage in the training, the master's program, is oriented mainly toward reinforcing the knowledge and the practical skills in the following areas of specialization: accounting, business, finance, management of human resources, information systems, international business, marketing, research operations and statistical methods, organizational behavior and the theory of organization, transportation and the distribution of material resources.

Students are admitted to the master's program on the basis of a comprehensive evaluation according to four criteria: the quality (grades) of training in the first stage; the number of points on the management entry exam—GMAT (graduate management admission test);² letters of recommendation from their previous school or job and other evidence that characterizes the professional qualities and abilities of the candidate. Of considerable significance is the financial

factor (one more refutation of the idea in their propaganda about "equal opportunity"). If the parents of the incoming student donate to the university or college a certain amount of money with noble goals,³ the question of admission is sometimes decided apart from the general criteria. This pertains especially to universities and schools of business that comprise the American elite (Harvard, Stanford, the Sloan School of Business at the Massachusetts Institute of Technology and others) where it is difficult to enter through the usual channels because of the high competition, in spite of the significant cost of education in them (close to \$10,000 a year). In 1984 the payment for a year of training in a state four-year college in the United States amounted to an average of \$1,270, and in private schools—\$6,140. From 1965 through 1984 the tuition increased 4.2-fold in state universities and 4.8-fold in private ones. The University of Maryland is fairly typical with respect to this indicator (see Table 1).

Table 1—Average Student Expenses at the University of Maryland
in the 1982-1983 School Year, \$ per year

<u>Kinds of Expenditures</u>	<u>Resident Student</u>	
	<u>Maryland Staff</u>	<u>Other Staff</u>
Tuition	1185	3303
Dormitory or apartment rent	1687	1687
Food expenses	1294	1294
Textbooks and materials	220	220
Other expenditures	565	565
Total	4951	7069

Organization and Methods of Training

During the 1982/1983 school year the College of Business and Management offered its students 80 courses for the bachelor's degree and 128 in the master's program. In spite of the broad selection in these disciplines, the sequence of their study was regulated. For instance, a student could take the course "Application of Economic and Mathematical Methods" only after having taken the course "Economic and Mathematical Methods and Laboratory Work on Computers."

At the University of Maryland there is an average of 19 students per instructor. In the first stage of the training more than 70 percent of the groups include up to 30 people, and individual lecture series (in the initial period) include up to 500 students. Do these mass numbers not have a negative effect on the quality of the training? The instructors and the administration of the College of Business and Management think that there is some effect, yet there are convincing arguments in favor of this situation. First of all, lectures are not regarded as the main source for the acquisition of knowledge. Reliance is placed on the independent work of the students with the textbook and the recommended literature. In the second place, such large lecture series are given by the more qualified professors who receive compensation, say, in the form of additional payment or reduction of their teaching load. In the third place, and this is perhaps the most significant argument, such large lecture classes are arranged out of considerations of economy and this

makes it possible to maintain the average teaching load per one instructor at a lower level.

The basic forms of classes in the college at the University of Maryland are typical of the majority of American business schools. The traditional lectures are used with a large audience and, as a rule, they elaborate on the material in addition to what the student has prepared at home according to the syllabus for the corresponding course.

When a lecture class is small (then it is called class discussion) it is arranged basically in the form of a dialogue in which the instructor gives the major problem-content outline of the given subject, periodically asks the students evocative questions on the course of the presentation, and leads the discussion that arises. A large part of such a lecture is in the form of a discussion, and for 15-20 minutes in conclusion they consider concrete situations. The students prepare ahead of time for their discussion. Class discussion is perhaps the most effective form of study.

In seminar classes, which in the college for the master's program are conducted on individual problem issues only two to three times a semester, several people speak who have prepared ahead of time a course of study on individual subjects or the results of scientific research. The idea of these seminars is not to reproduce the material from the lecture or the textbook on a particular subject but to develop the ability to analyze theoretical and practical problems independently, and to provide argumentation for suggestions and recommendations. In particular, when completing their study in an individual management course the students do not submit coursework of a summary nature. Instead, each of them in 15-20 pages presents a concrete management situation (the subject is selected independently, but the requirements for the presentation are determined by brief methodological instructions). Applying the base theoretical concepts of the given course, the student justifies his solution to the situation that is described. Here they evaluate the knowledge of theory and the ability to apply it in practice, the originality of the thinking and the solution to the situation, the profundity and consistency of the arguments, and also the ability to present their solution to the audience (two to three of the best solutions are discussed in the classroom in the form of a seminar).

The peculiarities of various methods of training have been described fully enough in Soviet literature on American management.⁴ What they have in common is an informal atmosphere and an elimination of the barriers between the teachers and the students. This is manifested in the style of behavior and clothing and in the forms of interpersonal and intergroup communications. It is thought that this kind of free and easy atmosphere essentially facilitates active assimilation of the material and the acquisition of valuable experience in human communication.

The combination of methods and forms of classes differ in various American business schools. It is determined by the goal orientation, traditions and other peculiarities of the school. For example, in the Harvard Business School analysis of situations and business games occupy up to 80 to 90 percent of the class time. There are schools in which only 15-20 percent of the class

time is spent on these methods. In the College of Business and Management the basic methods of training are class discussion, seminars on individual management problems and 2 weeks of on-the-job training at the end of the school year in one of four of the college's scientific research centers. Additionally, the students can attend numerous scientific seminars in various departments and subdivisions of the college. The most capable of them are invited to participate in scientific research under contract with firms through the instructors who are conducting this research as well as management consulting. On the basis of this they select the candidates for the doctoral program (the equivalent of our graduate school).

Various methods of psychological indoctrination are utilized fairly extensively, especially in the second stage of training. Theoreticians and practical workers in American management look for refined means of manipulating the awareness and the mood of the worker in order gradually to make him conform to the stereotypes of organizational behavior which are advantageous to the boss and the firm, and to develop a person who is devoted to the cause and the ideals of the company.

Such, for example, is the method of "sensitivity training." It is directed toward increasing the insight, self-awareness and influence in order to develop group solidarity and overcome situations of conflict through better understanding of the positions and views of their colleagues. The essence of "sensitivity training" lies in the concentration of efforts rather on the emotional than on the scientific-content aspects of training. The method suggests looking attentively at oneself "from within" and, as if from the outside, answering questions like the following: What changes would be desirable in your world view, in what area would you like to improve, and so forth. Organizationally, the method is presented as follows. There is a careful diagnostic analysis of the problems of the organization that require solutions. They select a group of 10-15 workers from the given organization who are of various ages, temperaments, specializations and so forth. The roles are distributed among the members of the group in such a way that they can see and perceive the management situations through the eyes of various officials and through various stereotypes of organizational behavior. A specially trained instructor stimulates the exchange of opinions and discussions in which a significant place is occupied by the analysis of actions, role positions and arguments of the partners. In other words, on the basis of intensive communications the students are motivated to critically evaluate and change their attitudes toward the colleagues and the overall goals of the group.

The active application of this method in business schools is not surprising also because the student contingent in them is significantly differentiated with respect to age, levels of education and practical experience. Thus in the program for the master's of business administration in the college at the University of Maryland in 1982 there were 200 people, their average age was 27, and their preceding specialization according to their diplomas from their first level of training were: science and technology--23 percent, business administration--20 percent, social sciences--38 percent, and humanities--19 percent.

Which method of training is preferable? It is apparently impossible to find a simple answer to this question. Table 2 shows how the priorities of various methods of training are distributed depending on their final goals. Experts were questioned using an identical method twice—in 1973 and 1982.

The main factors providing for intensification of training in the business school are strongly linked to the peculiarities of the functioning of the American economy, that is, the cult of individualism, enterprisingness and fierce competition in the struggle for the right to survive and flourish. In our opinion, they can be reduced to the following:

competition in hiring and differentiation in wages, depending on the level of education and the qualifications of the worker created a need for an education, in spite of its high cost;

the high cost of a college education places a heavy burden on the student and his family. You have to tighten your belt now for a couple of years of education and in the future you will be competitive and be able to hobble your way through, at least with knowledge and ability. Life forces the student to study independently a great deal and at the minimum he tries to pass his classes, and as a maximum to squeeze out of the professor everything he can get which can be learned;

there is good material and financial support for the training process (libraries and videotapes, copying and reproduction equipment, conditions for the organization and wages for the professor and teaching personnel, and so forth).

The American organization and methods exist in the university and in the school of business not in and of themselves, but in the context of the effect of the aforementioned factors.

Table 2—Positions Awarded by Experts in Training Methods,
Depending on the Attainment of the Final Goal of Training

Training Methods	Goals of Training							
	To Obtain Knowledge		To Change Convictions		To Develop Problem-Solving Skills		To Improve Interpersonal Communications	
	1972	1982	1972	1982	1972	1982	1972	1982
Lectures	9	2	8	6	9	5	8	6
Method of playing out roles	7	5	2	1	3	4	2	1
Sensitivity training	8	9	1	2	5	7	1	2
Business games	6	8	5	5	2	2	5	4
Selection of concrete situations	2	4	4	4	1	1	4	5
Programmed training	1	1	7	9	6	6	7	9
Conferences	3	3	3	3	4	3	3	3
Training films	4	7	6	7	7	8	6	7
Television lectures	5	6	9	8	8	9	9	8

Working Conditions for Instructors

"Sometimes one sees university professors complaining about their destiny: too much time and effort goes for overcoming organizational and bureaucratic barriers and public work involved with the life of such a large and complicated organization as our university. And the incentives for this daily unceasing process of occupational self-improvement are too small. But let us be fair: what can be better than a professorship with its free schedule, communication with classes, and possibilities of scholarly creativity!" This is what a professor of the College of Business and Management, Martin Hennon, told the author in a conversation.

In 1982 full professors comprised 28 percent of all the professor and teaching staff in the college, associate professors (docents in the Soviet VUZ)—30 percent, and assistant professors—42 percent.

American universities and business schools are operating under competitive conditions. This forces the administration and the instructors to constantly improve the quality of the training process in order to survive and to strengthen their positions as much as possible. The universities tried to attract the best-known and most qualified professors since their name plays no small role in the admission of graduate students and the overall prestige of the training institutions. The majority of instructors in the college at the University of Maryland have good working conditions. As a rule, each of them is provided with a separate office equipped with everything necessary for preparing for classes and scholarly work. The classload of the instructor is about 6 hours a week (in addition to this norm he holds office hours, directs course projects and so forth. This activity is strictly determined). This kind of organization allows the instructors a considerable amount of free time for preparing for classes, scientific research and consulting activity on management.

Consulting activity is actively encouraged by the college administration since it increases the interconnection between scientific research and training, on the one hand, and crucial practical problems, on the other, and it also increases the popularity of the given educational institution. And along with the increase in the number of students and the scope of scientific research on orders, the college's material and financial position improves. According to a regulation established in the College of Business and Management an instructor should spend an average of no more than 1 day a week on consulting. The administration, as a rule, does not strictly check on the observance of this norm until excessive involvement in consulting work (including for additional income) begins to have a negative effect on the teaching).

When getting to know the College of Business and Management one gets the impression that the administration does not intervene much in the organization of the training process. "A good manager, as a rule, is generally not noticed," thinks the college's dean, Rudolph Lemon. "This truth is especially correct when it comes to the university system. We have qualified personnel who themselves are well aware of what to do and how to do it. The task of the administration and the dean consists in correctly determining the strategic

course. To do this we must maintain constant contact with other educational institutions and the state government, know the needs of business, organize scientific research, attract capable graduate students, and so forth. One of the most important conditions for achieving high quality of training in the college is providing for correct administrative and material evaluation of the work of each professor. This quality depends not on the number of our meetings and strict orders, but on the conscientious work of the instructors with the students in the classes.

The activity of the educators is evaluated basically according to the final results. A special committee for evaluating candidates for filling vacant positions and promoting professor and instructor personnel utilizes three basic criteria:

research work (publication of books, papers, magazine articles, participation and scholarly competitions, awards for these and so forth);

educational and methodological work, taking into account the quality of the lectures and seminars conducted by the instructor. How are they evaluated? The department head each year sends the dean a report on each instructor. Additionally, there is an anonymous questionnaire of the students once or twice a semester;

the performance of work on assignment from the administration, professional societies or social organizations, participation in the work of the council of instructors, professional services rendered to business, and so forth.

On the basis of information coming in from the instructors themselves and also from the administration and public organizations of the college and university they determine the quantity and quality of the work done by each educator during the year. For none of these three groups of work is there any rigid norm or method for quantitative evaluation of the activity of the instructors. They rather proceed from the traditions and the level achieved, the sphere of specialization, the peculiarities of the given region and so forth. For instance, in order to remain "within the realm of propriety" a professor must publish no less than two to three articles per year. If he does not do this he must make up for it with good results with other evaluation indicators. But such behavior is not welcomed as a general practice. The most brilliant activity in one areas will not gain a high rating if achievements are regularly weak in other areas.

The evaluation commission makes one of four decisions: to increase the wages by a certain amount for the next year; to leave them the same; to leave them the same; to warn the instructor that he is not doing his job properly; to petition the university leadership to have him fired. The last two decisions are encountered rarely since the competition for a professorship with fairly high wages are sufficient motivation for high-quality teaching and scholarly work. In spite of the high level of social prestige, the pedagogical profession in the university is still not considered to be work that provides a high income. Many capable graduates of American business school prefer work in spheres of practical management where conditions are favorable for job advancement and increased income over a career in the university.

The organizational and technical changes in American and international business increase the demand for educated engineering and management personnel. But they do not eliminate the traditional capitalist plagues in the social sphere. About 30 percent of the Americans 25 years of age and older do not have a secondary education. As a rule, these people belong to national minorities and other underprivileged groups. And on the whole speaking qualitatively the level of intellectual development of youth who come to the university is causing alarm among many specialists. Thus the results of the standard school verbal test showed that the sum of points accumulated in 1982 amounted to only 93 percent of the 1970 level, and for the mathematics part—95 percent.

And although the ruling circles of the United States continue to plant in the minds of their compatriots and people abroad the traditional image of the shoeshine boy who through persistent labor rose to become a millionaire, still the roads to the business school continue to be closed off by socioeconomic barriers for people coming from the poor and middle classes.

The business school serves business.

FOOTNOTES

1. The author spent 9 months there (in keeping with the plan for international exchanges through the USSR Ministry of Higher and Secondary Specialized Education)—from November 1982 through June 1983, studying the American practice in managing scientific and technical progress, organization and methods of training in business schools, and so forth.
2. In 1983 the MAT was used by 720 business schools in various countries of the world and more than 550 schools demanded that each graduate student pass it. It was necessary to pay to take the test and on the territory of the United States in 1983 it costs \$30, and in the testing centers in other countries—\$36. This test makes it possible to evaluate the general and mathematical capabilities of the prospective student, the degree to which he understands and can analyze a text, traditions and standards of written language, elementary mathematical concepts, and whether or not he is able to quantitatively work out problems and interpret graphs, charts and tables. The amount of specifically management information reflected in the test is insignificant. Its content is updated once every 2 years.
3. Donations and special funds from private organizations and individuals are only one of the sources of financing state universities, including the University of Maryland. Other sources are funds from the federal and state government; tuition; a certain percentage of deductions from payments from state and private organizations for scientific research conducted by the university. Private universities are financed similarly, the only difference being that, as a rule, there is no financial support from the federal or state government.

4. See, for example, "Zarubezhnyye tsentry po podgotovke upravleniya" [Foreign Centers for Management Training] ed. by V. N. Churmanteyeva, Moscow, 1975; Smolkin, A. M., "Aktivnyye metody obucheniya pri ekonomicheskoy podgotovke rukovoditeley proizvodstva" [Active Teaching Methods with Economic Training of Production Managers], Moscow, 1976.

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BOOK ON MANAGEMENT REVIEWED

Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA* (EKO) in Russian No 3, Mar 86 pp 185-188

[Review by V. V. Bugayev, compressor station machine operator, the Elektrosignal Plant (Novosibirsk) of the book "O stile i kulture proizvodstva" [On the Style and Art of Production] by K. P. Dvorskoy and S. A. Shiryayev, Zap.-Sib. Kn. Izd.-VO, Novosibirsk, 1984, 68 pp]

[Text] The subject of the book "On the Style and Art of Production" is widely known. A good deal has been written about it. But I shall respond immediately, knowing the widespread difficulties in the work of brigade leaders, foremen and shop chiefs. We have here a necessary and timely publication that does not repeat which is already known.

Important socioeconomic changes are taking place today, first and foremost the intensive changeover from individual forms of organization of labor and wages to collective ones, and the increase in the role of labor collectives in managing production. Under their influence it is necessary to improve production management at all levels. The manager subconsciously senses this but he does not have time to read the appropriate scientific literature. Additionally, he needs a certain amount of theoretical training on questions of management, which is clearly lacking. The authors have tried to take this circumstance into account. Using concrete and true examples, the book reveals intelligibly and fairly profoundly the essence of the theoretical points concerning the style of management. It describes cases from the practice of various managers—from brigade leaders to directors.

From the multitude of approaches to classifying the styles of management the authors have chosen what in my opinion is the most interesting—the functional one. In keeping with this the styles are classified according to the degree of attention the managers pay to the production-technological and sociopsychological functions of management. The book causes one to think about the consequences that will ensue if the manager pays excessive attention to one of the functions to the detriment of another. It gives lifelike portraits of three types of managers.

Some of them are able to coordinate production tasks with human problems in their subdivisions. The collective's ability to work in these places is

constantly increasing. Others, striving for good, comradely relations with their subordinates, cross the boundaries of the permissible and leave the solutions to production tasks to take care of themselves. Labor indicators of subdivisions decrease with this kind of leadership. For the third type of managers nothing is more important than the plan. They resolve human problems in an extremely linear way, sometimes degrading people and suppressing through their arbitrary actions the desire on the part of the subordinates to work creatively and with initiative. As a rule, the subdivisions of which they are in charge increase productivity indicators rapidly at first, and then they steadily begin to decline. Having driven away capable specialists in the subdivision by this critical time such managers seem to be irreplaceable, and the higher leadership, having discovered the unfavorable situation, have a difficult time trying to find a replacement.

From this classification the authors draw an important conclusion: "The manager who ignores the sociopsychological function and does not wish to work with people will sooner or later show his lack of a foundation and his ability to organize the collective for fulfillment of the state plan."

"Reader, put yourself among the appropriate type!"—it is as though the book recommends this. But the authors' goal is not only to help the manager determine his own style of work with subordinates; they are far from the idea of labeling anybody as having no foundation. For them it is important that the reader start thinking. And they have achieved this.

The book has turned out to be interesting and useful primarily because of the successful combination of practice and theory. One of the authors is a practitioner. He recalls with a great deal of warmth the former director of the Sibtekstil'mash Plant, K. P. Dvorskoy. He did a great deal for the people and for the state. He also experienced a fair amount. On many occasions I saw the interest with which managers in courses for increasing qualifications have listened to the lectures of the second author—S. A. Shirayev.

Both authors are ardent champions of expanding the democratic foundations in production management. "The collective has great power over each of us," they write, "and, of course, it must be able to use it: without denigrating, but also without exaggerating it. It is extremely important for this power to extend to all members of the collective—from trainees to managers—and for it to be strengthened as a result of solidarity of all, unity in the struggle for socially significant goals. It is also important for each manager to be able to direct the wise authority of the collective and to use the democratization of production which is progressing today in order to strengthen discipline."

It was those places where democratization was discussed that caused me to ask questions as well. The material from which the book was written gives sufficient justification to note how strong are the barriers to the dissemination of democratic fundamentals that are raised by individual forms of labor organization, and also shortcomings in introducing collective forms whereby the interest in individual results of labor is retained and there is no interest in the collective results. Is it possible to have a truly democratic style of leadership with individual forms of labor organization? The answer to this question cannot be found in the book.

The authors, it seems correctly suggest combining various styles in the practice of leadership. Thus the level of the collective's readiness to carry out one task or another is taken into account. Various tasks require varying degrees of mobility of the collective and varying levels of development of relations in collectivism. Therefore one must also resort to authoritative methods of leadership, which solves the problem of the formation of collectivist relations poorly and unjustifiably slowly. It turns out that the style of management depends not only on the personality of the brigade leader, foreman, shop chief or director. It is predetermined by the organization of production, labor and management.

One begins to understand why the introduction of collective forms of organization and stimulation of labor, which can so effectively influence the style of leadership, are not exerting this influence. According to existing observations,² the leaders when forming brigades are not concerned enough about reorientation of the technology, equipment, instruments, work positions, forms, methods and style of management on collective work. Hence the labor remains individual in essence and content.

It seems that it is mainly the basic content of the sociopsychological function of leadership that is linked to the formation of collectivist relations in production. Yet the introduction of collective forms is handled mainly by the service for labor and wages, which frequently has no interest in what the engineer or worker thinks. It is necessary to have a sociopsychological service which would augment the sociopsychological function of every manager.

There are many positive examples that show that the sociopsychological function of leadership can be performed at a sufficiently high level even today. The advanced experience in this area is described in the book under review. I recommend that you read it.

FOOTNOTE

1. See, for example, SMENA, No 9, 1984, pp 18-19.

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LESSON IN JUGGLING FIGURES PRESENTED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVOIDSTVA (EKO) in Russian No 3, Mar 86 pp 189-190

[Article by Oleg Kratov: "A Lesson in the Highest Mathematics"]

[Text] Youth, youth! Where is my youth? In 3 months I can sign up for a pension and a well-deserved rest. Forty years of labor activity, and half of them here in the ministry, in the vanguard of the branch, in a shock area--control of the development of science and technology. Who will be in control now? A green youth. Neither experienced nor responsible. I have learned and defended so much, and all for naught. It is terrible to think what will happen to our applied science when I leave.

Here, for example, are the annual planning assignments of the scientific research institute and the design bureau. I give instructions to Devyatkin to differentiate the assignments for the various organizations. At first he did not even understand and ran to the reference book on higher mathematics to find a differential equation. Fool! What good are equations here when all one has to do is, in our way, in a scientific way, divide up the assignment among all the organizations. I explained to Devyatkin what to do and how. After 40 minutes he brought it to me.

"I divided it up," he said.

"In the first place, you did not divide it up, but you differentiated it," I corrected him, "and in the second place, this cannot be since this is a creative process and it takes no less than 2 working days even for me, and for you, Comrade Devyatkin, even a week would not be enough!"

He was offended, the fool. Then I sat down next to him.

"Show me," I said, "how you differentiated the volume of completed work that had been sent to the client. I daresay you did it depending on the normative of incomplete construction? With higher mathematics it can perhaps be done that way. But then it must be higher mathematics, and not the highest mathematics. What is this 7 million you have written down for Ivan Fedorovich?"

"Which Ivan Fedorovich?"

"Korobkin, the director of the VNIITYk. An extremely nice person. And when I went to visit him he tried to show me all of his production and the equipment for the laboratory base, but I hinted to him that it was hot, they say.... He understood the hint and called for a car.... Incidentally, this has nothing to do with the matter. You have given him too much. We will do it this way. We will give Ivan Fedorovich 5 million, no, better 4 million.

"Now Kirill Danilovich--VNIISmyk, such a jolly livewire. Even before the decree he used to drink like a fish.... But, incidentally, this has nothing to do with it. We shall give him 3 million instead of 5.

"Who else do we have? Otariy Georgiyevich? SKB BAMS--mountain air, grapes, shashlik.... But, incidentally, that has nothing to do with it, let us give him a million less, taking local conditions into account.

"What are you saying? We are not reaching the control indicators? Yes, that is probably right. But Fedor Ignatyevich from the technical administration will not give us much to play around with. You have the right idea, you have good intuition. Now let us take a look....

"Well, in the first place, why did you give that upstart Vlasov 6 million? Let his office tighten their belts. We shall give him 9 million, that will really make him jump, the dear fellow. I just asked him for a pass.... But, incidentally, that has nothing to do with anything. And Sidorkin, let us give him a million and a half, for some reason he has not come to see us for a long time, hurries through in a flash, and never has time to talk.

"How much is left? About 9 million more and nowhere to put it? Well, all right, let us add some for Korobkin, even though he might get a wrong idea about his own importance. And in general.... But, incidentally, that has nothing to do with anything.

"Well, is it time to go home? So you can see for yourself we have worked the entire day and dealt with only one indicator. Tomorrow we shall begin to differentiate the wage fund. That should be fun!"

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